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ABSTRACT

In November of 1965, the Provincial Executive of the Manitoba Teachers' Society established a commission made up of principals, teachers, and university professors to study reading in the Manitoba schools, including (1) reading teaching, (2) reading ability of elementary and secondary school pupils, (3) results of research elsewhere, (4) instruction of teaching reading methods at educational institutions in the Province, and (5) public hearings at which members of the educational or lay public may submit their studies and opinions. An extensive questionnaire was developed and sent to all teachers in grades 1, 2, 3, and 6 in the Province. A sample of approximately half the students in grades 1, 2, 3, and 6, a total of 30,973, was administered the Stanford Achievement Test in Reading (SRAT) and the Otis-Lennon Mental Ability Test. The results showed Manitoba children to be below the SRAT norm group. Intercorrelations of the variables, regression analysis, and analysis of variance were among the analyses performed. The commission suggested careful study of the following: (1) crucial variables affecting reading, (2) early detection of learning problems, (3) careful selection of reading materials, and (4) educational philosophy. A bibliography, tables, and appendixes (including the study questionnaire) are included. (BM)

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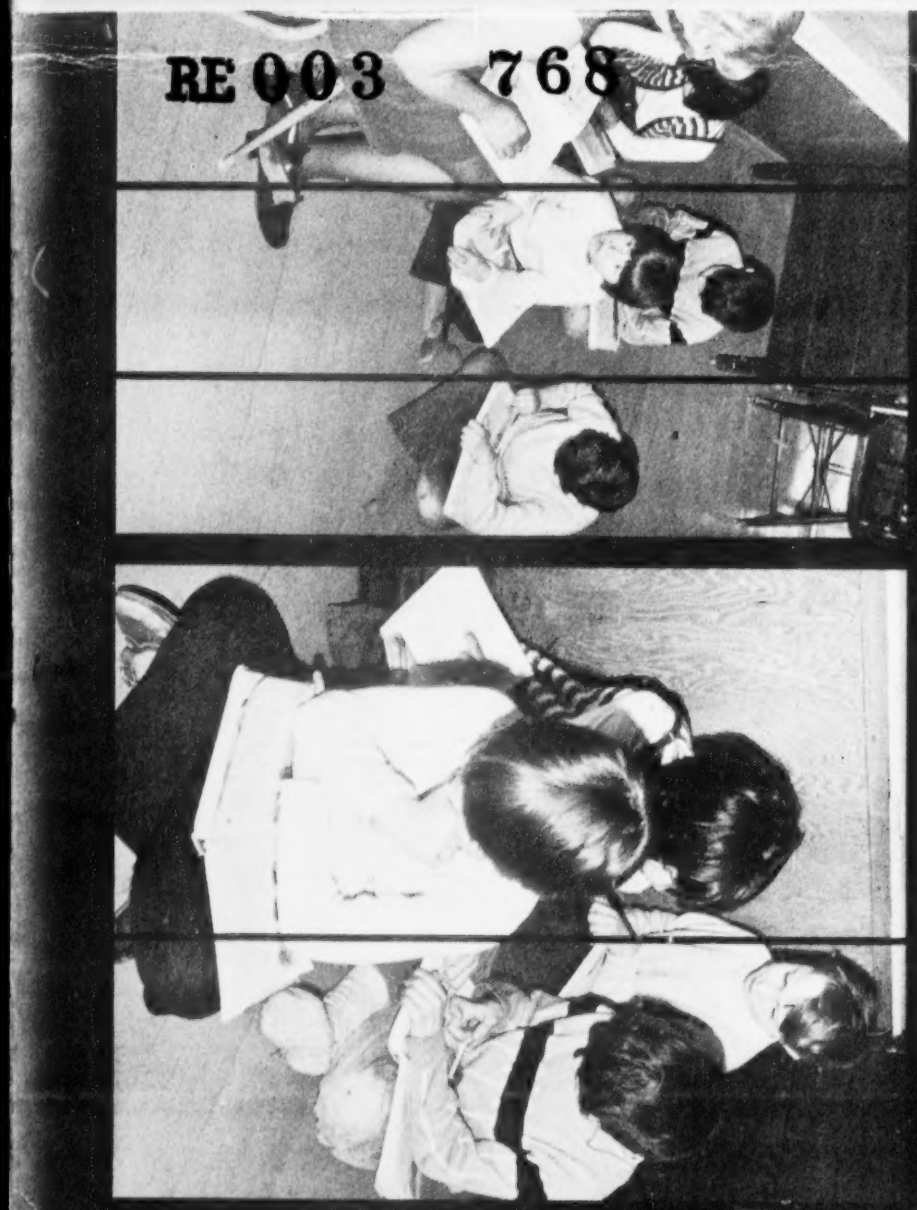
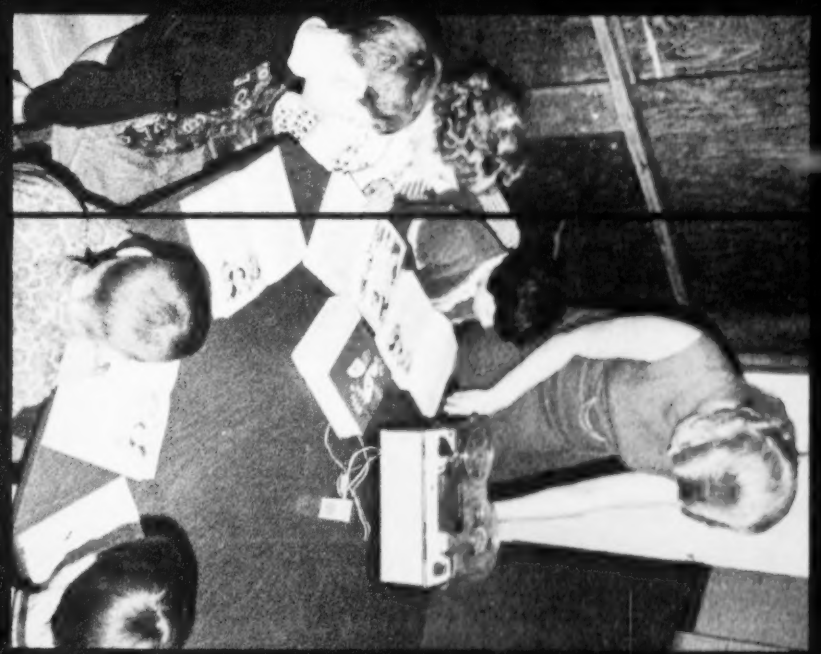
READING CONFUSION OF THE MANITOBA TEACHERS' SOCIETY

A SURVEY





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READING
IN
MANITOBA SCHOOLS

A Survey

By

P. G. HALAMANDARIS

U. S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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READING COMMISSION
OF
THE MANITOBA TEACHERS' SOCIETY

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THE MANITOBA TEACHERS' SOCIETY
READING COMMISSION

ROSS L. DONALD, B.A., M.Ed. (Manitoba). Chairman, Principal, River Heights Junior High School. Chairman, The Manitoba Teachers' Society Brief to the Royal Commission on Education. Past President, The Manitoba Teachers' Society. Winnipeg, Manitoba.

WALTER G. CHOMICHUK, B.A., B.Ed. (Manitoba). Principal, Van Belleghem School. Executive Member, Reading Council of Greater Winnipeg. St. Boniface, Manitoba.

ROBERT J. COCHRANE, B.A., M.Ed. (Harvard). Member of School Board. Past Chairman, Curriculum Committee, The Manitoba Teachers' Society. Past President, Manitoba Educational Research Council. Past President, The Manitoba Teachers' Society. Winnipeg, Manitoba.

MISS EVELYN D. COX, B.A., M.Ed. (Manitoba). Principal, Lord Roberts School. Primary Supervisor, Winnipeg Schools. Winnipeg, Manitoba.

LILLIAN M. LOGAN, Ph.D. (Wisconsin). Professor of Language Arts, Curriculum Development and Social Studies, Brandon University. Consultant to the National Council for Education of Young Children, U.S.A.

CLARENCE SWAINSON, B.A., B.Ed. (Manitoba). English Department Head and Teacher of English, Senior High School. Founding member of the Manitoba Association of Teachers of English (MATE). Past President of MATE. Winnipeg, Manitoba.

Staff Advisor

EMERSON L. ARNETT, B.A., B.Ed. (Manitoba). General Secretary, The Manitoba Teachers' Society, Winnipeg, Manitoba.

Consultant

CARL BRAUN, Ph.D. (Minnesota). Associate Professor of Educational Psychology, University of Manitoba. Research Associate for the Coordinating Centre for the Cooperative Research Program in Second-Grade Reading Instruction (1965-66). (Contract U.S. Office of Education, OEC3 - 7 - 001651 - 0472.)

Director

PANDELIS G. HALAMANDARIS, Ph.D. (Indiana). Associate Professor of Research and Psycholinguistics, Director of Educational Research, Brandon University. Principal Investigator for research project, "A Study of the Speed of Understanding Sentences as a Function of Sentence Structure," 1968, U.S. Office of Education, No. 7 - E - 146.

PREFACE

THE ORIGIN OF THE PROJECT

On November 13, 1965 the Provincial Executive of The Manitoba Teachers' Society established a commission to study the problem of reading in the schools of Manitoba.

Appointed to the commission by the Provincial Executive were the following members:

1. Mr. Eward H. Morgan—Chairman. Retired director of High School Instruction in Seven Oaks School Division No. 10 and formerly Assistant-Superintendent of Winnipeg Schools.
2. Mr. R. J. Cochrane. Retired principal of Kelvin High School, Winnipeg, Manitoba and a member of the Winnipeg School Board.
3. Mr. R. L. Donald. Principal, River Heights Junior High School, Winnipeg, Manitoba.
4. Dr. L. M. Logan, Professor, Faculty of Education, Brandon University.
5. Mr. C. T. Swainson, Teacher, Garden City Collegiate, Seven Oaks School Division No. 10.

As its December meeting the Executive appointed Mr. R. L. Donald as chairman in place of Mr. Morgan who could not accept the chairmanship but agreed to act as a member of the commission. Mr. E. L. Arnett, General Secretary of the Society, was appointed as staff member to act as liaison to the commission. During the term of the commission's activity several changes took place in its personnel. In April, 1967, Mr. E. H. Morgan resigned from the commission and was replaced by Miss Evelyn Cox, principal of Lord Roberts School in Winnipeg. In June of 1969 Mr. Swainson, who had acted as secretary of the commission since its origin, resigned and was replaced by a member of The Manitoba Teachers' Society Provincial Executive, Mr. Walter Chomichuk, principal of Van Belleghem School, St. Boniface, Manitoba.

The terms of reference of the commission as set out and agreed to by the Executive were as follows:

(i) a study of how reading is actually being taught in Manitoba;

(ii) a study of the state of reading in the Province at the present time in terms of the reading ability of pupils in the elementary and junior high and senior high schools of the Province;

(iii) a study of the results of research into these fields elsewhere, including research now being planned in Ontario;

(iv) a study of instruction given in reading methods at the teacher education institutions in Manitoba;

(v) public hearings at which members of the educational or lay public may submit their studies and opinions.

A preliminary survey of the terms of reference and the existing resources soon revealed that this was a very ambitious project and that a very great deal of money would be required to carry it out. The most immediate requirement seemed to be to engage a consultant who could lay out the details of the study. Dr. Marion Jenkinson, who at that time was an associate professor in the Faculty of Education at the University of Alberta was engaged as consultant. The Manitoba Teachers' Society advanced three thousand dollars as an original grant to launch the study. At this time Dr. J. W. Peach of the Faculty of Education of the University of Manitoba was asked to sit in on the commission meetings as an advisor.

In June of 1966 Dr. Jenkinson produced an outline of what would be involved in order to carry out the survey according to the terms of reference. Her estimate of cost was one hundred thousand dollars. This would pay for the salary of a research director, tests, clerical help, office space, computerization of results, interviews, etc., and publication of a final result.

The Commission then approached the Executive of The Manitoba Teachers' Society for a grant to begin the study. In April of 1968 the Annual General Meeting of The Manitoba Teachers' Society approved a grant of $15,000.00 to be used to engage a project director whose first task would be to raise the necessary funds to carry out his work. During the spring months advertisements were placed in the daily newspapers and in professional magazines. Several applications were received, but after those with qualifications were interviewed, none was considered suitable to carry out the project. The Commission decided to begin the task of raising the money by itself. Appeals to national and international foundations were not successful and after about fifty written appeals to business, etc., only $26,750 was raised. In the meantime Dr. Pandelis G. Halamandaris, of Indiana University, was engaged as project director, effective September, 1968.

It was obvious from the first that the complete project could not be carried out due to the difficulty of raising funds, so it was decided immediately that terms (i) and (ii) would be carried out but limited to grades one, two, three and six. Terms (iii) and (iv) would be fulfilled if possible and term (v) would have to be postponed for the present.

During the winter of 1968-69, tests were selected—Stanford Achievement Test in Reading, Otis-Lennon Mental Ability Test and Pintner-Cunningham. It was decided that in view of the cost of testing the whole school population (about 240,000) at about 40 cents per test, the Reading Commission would use a fifty percent sample of grades one, two, three and six. Dr. Halamandaris made a trip to Harcourt, Brace and World, the publishers of the tests in New York and secured their cooperation in the testing program for special prices and aid in scoring and administering the tests. One of their staff came to Winnipeg and aided in a series of workshops with teachers. The support of the Department of Youth and Education of the Manitoba government was solicited and secured with a grant of $5,000 and also a pledge of clerical help and aid in the cost of purchasing tests and processing the data.

In September of 1967, Dr. Carl Braun joined the staff of the Faculty of Education, University of Manitoba. On the recommendation of Dr. Peach, he became consultant to the Commission and has acted in this capacity since that time.

Acknowledgements:

1. The cost of this study has been borne by monetary grants in the following amounts:

Manitoba Educational Research Council	1968	$ 1,000.00
The Manitoba Teachers' Society	1966	3,000.00
	1968-69	15,000.00
	1969-70	10,000.00
	1970-71	5,500.00
Winnipeg School Division No. 1	1969	500.00
	1970	500.00
	1971	500.00
Labatts (Manitoba) Brewery	1968	250.00
Department of Youth and Education	1968	5,000.00
Government of Manitoba—Test cost	1969	6,100.00
James Richardson & Sons	1970	500.00
Winnipeg Foundation (see Frontispiece)	1970	4,065.00
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2. Help provided in the form of services:
   (i) The Manitoba Teachers' Society—office space, clerical, equipment, secretarial, etc., over the entire time of the study.
   (ii) Manitoba Department of Youth and Education—printing the questionnaire and data processing.
   (iii) Harcourt, Brace & World Inc.—reduction in cost of tests, attendance of Mr. T. Hogan at workshops in April, 1969 to brief teachers on administration techniques.
   (iv) The IBM Corporation, and staff (Winnipeg)—for their assistance in processing the data of the study.
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   (vii) A number of faculty members and students (1969-70) of the Faculty of Education at Brandon University for their suggestions, encouragement and help in the completion of the report.
   (viii) Large numbers of Manitoba elementary teachers who sacrificed many hours in administering and scoring the tests and in replying to the teacher questionnaires.
   (ix) Dr. Sybil Shack, Mrs. S. Peckover, Mrs. M. Wiancko and Dr. G. Walby for aid in the revision of the teachers' questionnaire.

3. The following persons who supplied aid in many ways:
   (i) To Dr. P. G. Halamandaris—who undertook the research and has carried it forward to a successful conclusion in spite of many obstacles.

(ii) To Dr. Carl Braun—Consultant. An invaluable source of information and advice throughout the study.

(iii) To Mr. Emerson Arnett, General Secretary of the Society who was the sparkplug of the study in its early stages and who has kept it alive throughout its development and served as acting secretary for much of the time.

(iv) To Mr. C. Swainson—a member of the Commission in its early stages and its secretary for the first three years.

(v) To Dr. Marion Jenkinson for the foresight, knowledge and skill that she displayed in drawing up the original plan.

(vi) To Dr. Farouk Chebib, Biostatistician of the University of Manitoba, who provided continuous advice in the statistical analysis and the necessary computer programs for the analyses.

(vii) To Dr. Peter Taylor, Department of Regional and Economic Expansion (DREE), formerly of the Faculty of Education, University of Manitoba, who has provided statistical advice during the study.

(viii) To Dr. J. W. Peach, Faculty of Education, University of Manitoba, for early advice in the planning of the study.

(ix) To Dr. Marion L. McGuire, Coordinator of the Graduate Center for the Study of Reading, University of Rhode Island, for her permission to use part of the questionnaire which was used in a state-wide Study of Reading Program in Rhode Island.

(x) To members of the staff of the Department of Youth and Education, Government of Manitoba :

Mr. G. M. Davies, Associate Deputy Minister

Dr. H. D. Hemphill, Formerly Director of Research and Planning

Dr. W. C. Lorimer, Deputy Minister of Youth and Education.

All of the above have been supporters of the study since its inception.

(xi) To the Faculty of Education of Brandon University for providing space, materials and personnel towards the completion of the final report of the study.

(xii) To school administrators, school inspectors and other personnel directly or indirectly involved with the schools in Manitoba who made this study possible.

(xiii) To the members of the Commission who have attended meetings and worked many hours to support the study. Their personal qualifications and histories are outlined below.

Ross, L. Donald, Chairman.

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MANITOBA READING COMMISSION STUDY

INTRODUCTION

Success in school depends largely on reading ability. In junior and senior high schools 80 to 90 per cent of the study activities involve reading. In elementary schools the task of guiding pupil learning in all areas of study is usually the responsibility of one teacher. These elementary schools have become the setting in which children learn to read. These are the places in which reading goals are set—goals involving the attainment of basic skills of word recognition and analysis; an understanding of words, sentences, paragraphs and stories; and the goals of developing interest in further reading.

If one can say that the successful reader is made rather than born, then he may be considered a finished product of the educational system as well as of all other variables that affect his development as a successful reader. (Austin, 1961, p. 38.)

The key area in any teaching situation is the conditions under which learning takes place. In examining children's reading achievement one must consider the school environment of the child. (Wilford, 1968, p. 99.) This will consist of many variables ranging from the desk in which the child sits to the pupil who sits next to him, to the teacher who stands in front of him (Coleman, 1966, p. 8). Coleman (1968, pp. 19-28) provided evidence in his report that there were three major places in which a child could find educational resources necessary to achievement: the home, the environment provided by his peers in the school and neighbourhood, and the resources provided by the school itself.

Using reviewed research findings to assist in establishing guidelines, and bound by the limited budget available, the Commission decided to concentrate on the following modified terms of reference: (1) study of the state of reading in the province at the present time with respect to the reading ability of elementary pupils; (2) study of the results of research into aspects of reading which are relevant for the present study.

The purpose of the present study was not to evaluate the effectiveness of any given method. It attempted, rather, to collect generalized, or descriptive information in the field of reading at the elementary level and to assess the status of reading in the Province of Manitoba. Probably the main contribution of the present study will be to make available a comprehensive collection of objective data about Manitoba elementary school children. The present study is, of course, only one of the many which numerous institutions and persons are pursuing in an effort to understand the critical factors relating to reading achievement and hence to build a sound basis for recommendations for improving reading in Manitoba. In similar studies (Ramsey, 1967), in order to measure the performance criteria, achievement or attitude tests have been used rather than a mailed questionnaire. In the present study both instruments were used: that is, a questionnaire mailed to teachers, and an achievement test.

Specifically, the present study attempted to describe reading achievement of the Manitoba school children in grades one, two, three and six. In this process a number of variables were found to contribute to reading achievement as measured by various statistical tools, for example: teachers' backgrounds, school policies, school facilities, materials used, etc. Therefore, beyond its attempt to describe achievement, the study also attempted to explain observed variances by mapping out relationships that might exist between variables cited above and the actual achievement of children.

The writer of this report feels that a parenthetical statement needs to be made here in order to caution the reader with reference to the total purpose of the study. Although the present study attempted to investigate an asymmetrical relationship (Rosenberg, 1968, pp. 9-10), *i.e.*, that the independent variable (such as library facilities, etc.) is a necessary precondition for another variable (such as achievement in reading), it is necessary to bear in mind that such variables **do not** "cause" the achievement in reading; they only make it possible. In some schools with fine library facilities the children do not achieve as high a level as those from other schools. Library facilities are thus a necessary, but not a sufficient condition for creating the dependent variable (reading achievement). They are not causal in the sense of "forcing" or "producing" the result. Correlation does not prove causation.

In similar studies, it is usually assumed that there will be considerable variation on the performance variable which could be attributed to individual differences. These differences which could be considered **within the child** are variables that the child brings to the task of learning to read (Austin, *et. al.*, 1961, pp. 29-34). These differences could be his mental ability, his personality, his physical development, his background of experience at home and elsewhere, his language, or his interests and motivation. For example, in the case of mental ability (in the present study the initials "IQ" will be used to identify mental ability) (IQ), being a hypothetical construct, it is a hypothetical source of variance (individual differences) in test scores. It could be said that IQ is "responsible for" the relationship between the dependent and the independent variables.

To say that the relationship between the dependent and the independent variables is due to the IQ variable is to mean that **were it not** for IQ there would be no relationship between the dependent and the independent variables.

In order to investigate the possible symmetrical or asymmetrical relationships between the two variables, a third variable called a **test factor** is introduced into the analysis. This is what is meant by the process of elaboration (Rosenberg, 1968, p. 24). Thus as a result of controlling or holding constant the third variable by means of partial correlation or otherwise, it could be concluded that the relationship is due to something other than the third variable, *i.e.*, that the relationship between the two variables is not due to IQ.

Under the circumstances, the variables used in the present study are considered to be critical for the purposes of the present study but at no time need to be considered exhaustive.

The variables chosen for the present study were based upon the following criteria:

(1) those variables that accounted for the largest amount of variance in previous studies; for example, the consideration of this criterion included the fact that home and community influences are strong, and that foreign-language background and the absence of pictures and books in the home may be important in that they may affect academic achievement;

(2) those variables that could be manipulated in some later study.

It is the hope of the Commission that the findings of the present study will serve as a springboard for further experimental studies in areas where such investigations will be fruitful for the improvement of reading. It must be borne in mind that the purpose of all correlational studies is to generate hypotheses for further studies.

THE TEST FACTOR

In the present study the variables under investigation are:

(a) pupils' mean reading achievement score—the dependent variable or the predictand (Kish, 1967, p. 594) variable (output).

(b) environmental factors—the independent variable or explanatory variable (input).

The explanatory variables, or the source of variation which this study attempted to find and between which it attempted to measure some specified relationships, are based upon previous research findings. A list of the variables used in the present study is shown in Appendix I.

GENERAL OUTLINE OF THE STUDY

Information sought in the present study falls into the following categories:

I. The relation of the learning environment to reading achievement

1. structure and materials—(specifically, information was sought with reference to size of class, organization for reading, what percentage of class had kindergarten experience, teacher-pupil relationship, grouping practices, assessment of pupil readiness, assessment of pupils' ability, time spent in reading programs, and basic instructional materials);
2. personnel (the present study attempted to gather information about teacher characteristics such as experience in teaching, courses in reading, participation in in-service sessions, most helpful journals, academic preparation, and teachers' perception of pupils' achievement);
3. administration (in this study, information was sought with reference to the kind of help which was available to the teacher);

II. The relation of the social-family environment to reading achievement (in this study, information was sought with reference to the socio-economic level of pupils, urban/rural classification, academic achievement in reading, mental ability and language background) ;

III. The study involved the following steps :

1. development and administration of a questionnaire to elicit information from teachers regarding the school, school policies and the teachers' and pupils' backgrounds. (The questionnaire was sent to all teachers of grades one, two, three, and six who taught reading in the public schools of Manitoba.) ;

2. administration of a mental ability test and a standardized reading achievement test in a large and varied sample of schools across the province ; and

3. recording and analysis of results which included :

   (a) percentage count of teacher responses to questionnaire questions ;
   (b) test results by grade and urban/rural ;
   (c) intercorrelations of the variables ;
   (d) principal component analysis ;
   (e) regression analysis ;
   (f) analysis of variance ;
   (g) interpretation of the results and a statement of conclusions drawn.

CHAPTER 2

RELATED RESEARCH

Two studies of a nature similar to the present one were conducted in Alberta (Lampard, 1964; Jenkinson, 1964). Both studies were conducted by the Department of Elementary Education, University of Alberta. The purpose of these surveys was that of appraising the reading programs in grades one to twelve with respect to reading development as compared to indicated potential.

The two surveys used a similar format for selection and testing of pupils. In Jenkinson's (1964) teachers chose three pupils from each class considered to be of high, average and low achievement as compared to the rest of the class. In Clyde School (Lampard, 1964) pupils were again selected from each grade in the school, but this time two high, two average and two low achievers were selected from each class (with the exception of grade nine). A battery of group and individual tests composed of such tests as the Stanford Achievement Test (Form L), the Iowa Silent Reading Test and the California Achievement Test was administered in November, 1964. Both surveys included the Schonell Word Reading Test (British) as an individual test of oral reading skills. Chronological ages and IQs of the pupils were obtained from the school records. It should be noted that in both surveys pupils and teachers were interviewed for the purpose of discovering and to some extent evaluating reading interests and activities and teacher problems. Both surveys indicated that library facilities were inadequate and that little appropriate use was made of available materials. Both surveys included a note to the effect that better reading habits "occur in an environment in which the teachers and parents do a great deal of reading" (Lampard, 1964, p. 38).

The two surveys indicated that Division I (grades one to three) showed a steady improvement in general on the Stanford Reading Achievement Tests, the mean of each grade being commensurate with published grade norms for the time of year in which the tests were administered. Two points are noteworthy;

(1) in general pupils performed "slightly" lower than might be expected for the time of year, although pupils doing the Stanford Tests appeared to be exceptions (with one or two others) and performed better than those doing other tests. (A possible explanation for this could be that these tests simulated familiar workbook experiences in which context could be used to discover meaning (Lampard and Jenkinson, 1964, p. 16));

(2) achievement on the individual sections of the Stanford Test was not commensurate with the grade mean for average pupils.

Both surveys published the results of the Stanford Test for grades two and three only of Division I. Lampard (1964) indicated that the mean score of the average pupils in grade two was equivalent to the mean score for the grade in both Word and Paragraph Meaning. However, the mean score for the average pupils in grade three fell below the grade mean. Jenkinson (1964) indicated that the mean scores for the average pupils in both grades fell below the grade mean and/or the commensurate norms. Tables 2.1 and 2.2 show results for Clyde and Peace River School Divisions on Stanford Reading Achievement Tests.

The Schonell Word Reading Test was used to ascertain the level of word study and vocabulary skills for this division (Division I). The results indicated that neither of the means for grades two and three reached the norm level. It should be noted that the editors of the reports felt that comprehension even on the Stanford Reading Achievement Test was not as high as the intelligence scores of the pupils appeared to warrant.

TABLE 2.1

RESULTS OF THE CLYDE SCHOOL DIVISION ON STANFORD READING ACHIEVEMENT TEST

(Abstracted Table)

	Grade Two	Grade Three	Grade Six
Word Meaning	2.2	3.3	5.4
Paragraph Meaning	2.4	3.7	5.7
Norms	2.3	3.3	6.3

TABLE 2.2

RESULTS OF THE PEACE RIVER SCHOOL DIVISION ON STANDARD READING ACHIEVEMENT TEST

(Abstracted Table)

	Grade Two	Grade Three	Grade Six
Word Meaning	2.2	3.1	6.4
Paragraph Meaning	2.3	3.2	5.7
Norms	2.3	3.3	6.3

Division II results for the two surveys indicated similar findings with minor differences. In general, the results for the Clyde School (Lampard, 1964) were lower than those indicated for the Peace River School Division (Jenkinson, 1964). However, both showed a similar pattern for reading development, progressing normally from grades four to five but slowing sharply between grades five and six. The results for Word Meaning indicated by Lampard (1964) showed that the average pupil was scoring below grade norms and, with the exception of grade five, below the mean for the grade. The findings for Peace River showed a similar relationship between the mean for the average group and the grade, with the difference of the grade mean being on or above the standardized norms. However, both reports indicate a greater deviation from the equivalent norms for Paragraph Meaning. Clyde School indicated a progressive decrease in

development, hence a progressive falling below the norm from grades four to five, with the mean for the average pupils of grade five being the same as that for grade four. There was a "development" from grade five to six, but this was not great enough to raise the average to the norm level. Jenkinson (1964), recording the results from the Peace River Division, indicated a normal development between grades four and five although again the means were below the established norms. The development between grades five and six was practically nil with the mean for the average achievers being approximately one year below the test norms.

Again the results for the Schonell Word Reading Test revealed a similar developmental pattern in each of the survey areas. Both reports showed a progressive development from grades four to six, with the grade mean showing lower than the commensurate norm. One of the conclusions by the editors on this pattern was that the relatively low performance on the Schonell Test indicates poor word attack or word study skills, which fact is limiting word recognition, hence comprehension.

The reader should keep these reports in mind as he approaches the findings of the present study, as there are several significant similarities and differences worth intensive consideration.

The report published in 1965 by the Ontario Curriculum Institute produced information with respect to practices employed by teachers and school authorities in evaluating aspects of existing reading programs in Ontario schools. The report, prepared by the Committee on the Study of the Teaching of Reading, was an analysis of the responses to a questionnaire by approximately 6,000 teachers attending 31 Department of Education summer courses in 13 centres in Ontario within a 200-mile radius of Toronto.

The questionnaire was designed to elicit information with regard to existing patterns in the use of conventional measuring instruments and the attitudes and opinions of respondents towards such tests.

The questionnaire elicited information on: (1) frequency of testing; (2) types of tests in use; (3) usefulness of tests; (4) use made of test results; (5) evaluation of reading programs.

With reference to frequency of testing, there was little agreement in existing patterns of testing reading. The most frequent pattern was the weekly testing of oral and silent reading.

As for the type of test used, a large number of schools used a combination of standardized and teacher-made tests. One of the recommendations of the study was that the use of various evaluation techniques to assess growth in reading indicates the need for a more critical examination of the nature and function of such test instruments as valid measures of reading achievement.

The test results were used for diagnosing and determining materials for further teaching.

The respondents of the questionnaire, in rating aspects of the reading program, gave first priority to such elements of the reading program as comprehension, silent reading, and vocabulary development, and lowest priority to oral language, oral reading, and written language.

A study by McGuire (1967) of the achievement of 12,695 fourth grade pupils in 285 Rhode Island State Schools—public, parochial and private—examined several variables also used in the Manitoba Study. The questionnaire used—one of the patterns for the design of the RCS questionnaire—attained a high rate of return.

In summary, the following statements were made on the basis of the results of the Rhode Island Study:

(1) children entering school in the earliest age group did as well as, if not better than, children in older age groups;

(2) traditional basal reader look-and-say methods with gradual phonics produced significantly higher achievement than intensive phonic or experience approaches; the language arts approach also exceeded prediction;

(3) schools organized for reading on the basis of within-grade grouping did significantly better than those with self-contained classrooms. (However, most of the schools also fell into the same category on several other treatments which produced plus-deviation scores in this study);

(4) using a multiple basal approach or a basal reader with supplements was found to be better than using only one basal reader (Schools having only one reader available did poorly when compared with a level expected for schools having the same average intelligence score);

(5) schools that used Houghton Mifflin or Harper & Row basal readers as the core of their reading program exceeded an expected level of achievement;

(6) a complete phonics program and teacher-made mimeographed materials were the supplementary materials that showed the closest relationship to achievement in reading comprehension.

(7) schools that provided a reading specialist to work with pupils that needed help scored higher than schools providing other kinds of help or no help.

(8) achievement appeared to be related to class size with classes of less than twenty scoring the highest and those of thirty-six or more scoring low when equated on intelligence.

(9) scores for schools having consultant assistance for the teachers in planning on an "as needed" basis exceeded scores for schools having other or no consultant arrangements;

(10) schools having eight or more books per child in the central library scored higher than schools having fewer library books.

McGuire, in assessing the results of the study, pointed out that it seemed that many factors need be considered in the development of a good reading program and that most of these are based on the capacities of classrooms and total school environments for flexibility and differentiation.

Other studies of more specific nature will be referred to in the discussion section of the report.

A report of the advisory board of the Province of Manitoba (1967) provided information with reference to the components of the reading program; individual differences, special services, and library facilities; evaluating, recording and reporting; professional growth of teachers in reading; and the role of the administrator in the program. The report is composed of two major sections. First the effects of teaching reading by a phonetic program were compared to those programs which were authorized (eclectic programs). The experiment was initiated in September 1962 and it was terminated in 1965. The second part of the report provides information from 780 returned questionnaires out of 1,000 possible. The report of the advisory board has only indirect relevance to the present study as it deals primarily in the comparison of methods. The purpose of the present study, as it was stated before, is not to compare any methods of teaching reading.

CHAPTER 3

APPROACH AND METHOD

DESCRIPTION OF THE SAMPLE

The Population

The population selected for the present study consisted of all public school children in Manitoba who were in grades one, two, three and six, in 1968-'69. The target population, by grade, was as follows:

Grade 1	22,738
Grade 2	21,850
Grade 3	20,813
Grade 6	19,738
	85,139*

The Commission on Reading viewed the present survey not only as a research project to be carried out but as an educational instrument that would benefit the school administrators, teachers and pupils participating in the present study. It was, therefore, the Commission's decision that the survey be designed to provide reliable information or estimates for a large number of schools and pupil and teacher characteristics for the province as a whole, considering estimates for urban and rural localities as well as for various socio-economic levels. Hence, approximately 50 percent of the population was sampled.

The Sample

In designing the sample and determining the manner in which the sample was to be drawn, it was important, as in other surveys, to take into consideration both the purpose of the study and the material and resources that were available.

Among the important materials that were available in the preparation of the sample design were the following:

(1) census data (information was available from the 1961 Census—Dominion Bureau of Statistics—on such characteristics of the population as the average earnings in the province per census division and the average earnings per census tract for the Winnipeg Metropolitan Area);

(2) Taxation Statistics (1968 Edition) (from this source it was possible to obtain taxable returns by occupation, returns by income classes, by cities or place of residence, and returns by province and occupation);

(3) Manitoba Department of Youth and Education, Statistical Report—listings of schools were prepared by the Department of Youth and Education. (It was possible to obtain from this listing the number of schools, number of grades, and enrolment per grade. The number of classes per grade, and the number of teachers were not shown. The lists of schools

*Manitoba Department of Youth and Education, Statistical Report (mimeographed), for September 1968.

had to be reviewed as there were discrepancies between September, 1968 and March, 1969 when the sample was prepared) ;

(4) listing of teachers—(In the fall of 1968 The Manitoba Teachers' Society prepared a list of all teachers in the province based on Inspectors' lists. From this source it was possible to obtain teachers' numbers for computing purposes, a list of all teachers of grades one, two, three and six who taught reading, teachers' experience, and teachers' grant classifications according to years of academic and professional preparation) ;

(5) balanced assessment of School Division 1968-'69 and General Levy—(It was possible to obtain from this listing an index of economic welfare of each school division in conjunction with other sources of information* and those of the D.B.S.).

The steps that were taken in drawing the sample are described below in (1) and (2).

(1) Urban and Rural School Classification

All the elementary schools in Manitoba were divided into the two major strata, urban and rural, according to the following criteria :

(a) Population centers of 10,000 people or more were considered as urban, and

(b) Population centers of less than 10,000 people were considered rural.

Thus the following population centers were classified as urban :†

Winnipeg	257,005
St. Boniface	43,214
St. James	35,685
Assiniboia	30,000
Brandon	29,981
St. Vital	29,528
East Kildonan	28,796
Fort Garry	22,905
West Kildonan	22,240
Transcona	19,761
Thompson	15,000
Portage la Prairie	13,012
Flin Flon	10,201

and the schools which are within these areas were considered as urban. Population centers in Manitoba exclusive of the above were classified as rural.

(2) Economic Classification of Schools

According to the Dominion Bureau of Statistics, the Metropolitan area of Winnipeg is divided into 98 census tracts. It was possible to

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*(1) Interviews with officials of the Department of Municipal Affairs and The Department of Industry.

(2) *Statistical Information* (1967), Municipalities of the Province of Manitoba and The Metropolitan Corporation of Greater Winnipeg.

† 1961 Census of Canada, Dominion Bureau of Statistics.

obtain from other sources of D.B.S. the average earnings for each one of these census tracts. Census tracts were ranked in descending order according to their average income. All elementary schools in the Metropolitan Winnipeg Area were assigned to their specific census tracts and were ranked accordingly.

For the other urban areas—Brandon, Portage la Prairie, Thompson and Flin Flon—the whole population center was given one ranking according to the average earning of this area based upon D.B.S. figures and all the schools within this area were ranked accordingly.

Similarly, ranking of rural area schools was done according to figures obtained from the sources mentioned previously.

Lists of urban and rural participating elementary schools classified according to income appear in Appendix I.

The sampling unit was the school and once a school was drawn into the sample the total enrolment (*i.e.*, grades one, two, three and six) was to be tested, despite the fact that in some schools very often there was more than one class per grade, or, in some schools, one grade missing. Procedures to ensure adequate representation of schools from most of the census tracts were, however, adopted.

If two schools were in one tract and these schools were comparable in enrolment (*e.g.*, in the census tract of Tuxedo, Laidlaw with 99 pupils and Tuxedo Park with 107 were considered as comparable in enrolment) one of these schools was chosen at random*. In situations where enrolment was not comparable within a census tract, schools within the adjoining census tracts were considered. For example, in Winnipeg 45, Brock-Corydon with 127 pupils and La Verendrye with 238 pupils could not be considered as having comparable enrolment. Under the circumstances schools from adjoining census tracts were considered. Thus, crude 50 percent samples were drawn from the total list of urban schools and from the total list of rural schools.

Following the choice of schools for the sample according to the procedures described above, the pupil enrolment total of each school was divided into upper third, middle third and lower third, representing the High, Middle and Low socio-economic status groups of the school in relation to the average income of the area.

The Socio-Economic Classification

Some of the factors which were used for SEL classification were the parents' levels of education and the fathers' occupations. Unfortunately, in a study of more than 30,000 students, it is not possible to study a precise classification such as parents as teachers, as was studied by Dave (1963).

The variables which were available were the fathers' occupations and, through questions in the questionnaire, the general educational level of the community where the school was located. This useful indication reveals a limited range of the home background.

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*Using Tables of Random Numbers.

Sources of Bias in the Present Sample

There were three sources of bias in the present sample: (1) the schools which refused to participate; (2) the teachers who, for reasons of their own, refused to participate in the study either by not completing the questionnaire or by not returning it, or by refusing to test their children; (3) there were, due to procedural error, eight schools that were included in the sample that were notified two weeks late and to which tests were sent two weeks late according to the original schedule. Categories (1) and (2), above, together represented three percent of the total sample.

SOURCES OF DATA

Data for the Manitoba Reading Commission study were gathered from four sources:

(1) responses to the questionnaire sent to all Manitoba teachers of reading in grades one, two, three and six;

(2) results of a large scale testing program which assessed reading achievement and mental ability of pupils of the sample;

(3) data sheets, compiled during the testing program by participating teachers only, and which recorded characteristic details of pupils, *i.e.*, socio-economic level, sex, chronological age and second languages spoken;

(4) The Manitoba Teachers' Society Alpha File and publications of the Province of Manitoba Department of Youth and Education.

Sample copies of the pupils' data sheet and the letter of instruction to teachers appear in Appendix I.

DEVELOPMENT OF THE QUESTIONNAIRE

An examination of research studies and references (*cf.* Morris, 1959; Austin and Morrison, 1963; Ramsey, 1963; McGuire, 1967; Sawyer, 1968) revealed a number of factors considered to be important in reading. The factors chosen for the present study were stated in the introductory section.

Three basic decisions were reached with respect to the general format of the questionnaire prior to the writing of items for it. First, it was decided that the questionnaire should provide information that could not be obtained from other sources. Second, it was decided that the Rhode Island Questionnaire (McGuire, 1967) would be used as a starting point in the development of the questionnaire for the Manitoba Reading Commission study. Third, it was decided that the multiple-choice format would be employed.

A list of hypotheses was formulated and this list became the basis for questionnaire items. As resource materials, various questionnaires from other surveys were consulted (*cf.*, Austin and Morrison, 1963; Ramsey, 1967).

The first draft of the questionnaire was prepared by a sub-committee of the Reading Commission. These items were reviewed by critics, *i.e.*,

principals, teachers and people with expert opinion in the field of reading. The revised form was pilot-tested in a reading methods class at the University of Manitoba. Teachers were urged to react to the questions, criticising or commenting on the content or format of the questionnaire. On the basis of the teachers' and critics' comments, a second draft was prepared and field tests were given in various urban and rural schools. On the basis of this final evaluation, many items were refined and the final draft was prepared.

The 40-item questionnaire (with four open questions) which resulted is reproduced in Appendix I of this report.

THE QUESTIONNAIRE

The Manitoba Teachers' Society
Reading Commission Study Questionnaire (MRCQ)

The purpose of the MRCQ was to secure factual information about certain aspects of the teaching of reading in Manitoba. It was designed to collect both quantitative and qualitative data regarding variables that the Commission had decided to investigate with respect to pupils, classroom organization and teachers.

For purposes of computer identification a five digit number—the same number as that used by The Manitoba Teachers' Society in the Alpha File—was affixed to the back of each questionnaire. The Alpha File number was used to facilitate the availability of additional information concerning teachers' academic preparation, years of experience, addresses, etc.

On February 4, 1969, the questionnaires were mailed to all teachers who taught reading in grades one, two, three and six in the province of Manitoba. Each questionnaire was accompanied by a covering letter and a self-addressed envelope. To ensure that the answers were confidential, each teacher was instructed to enclose his questionnaire in the self-addressed envelope and direct it to the Commission directly or to the Commission through his principal. All questionnaires for each school were mailed to the principal with a letter addressed to him.

As the questionnaires were returned to the Commission, they were reviewed for completeness of information given. The following problems developed:

(1) some questionnaires were returned with their identifying number torn off;

(2) some questionnaires were not returned at all.

It was noticed that there was considerable resistance to some of the questions. In one locality the questionnaires were exchanged among teachers in order to eliminate the possibility of identifying them. The research team, by keeping very close track of the returned questionnaires, was able to identify the schools or the teachers who did not return them, those who returned unidentified questionnaires, and those who exchanged questionnaires. During scheduled interviews and telephone calls to schools explanations of the importance of the questionnaires to the study

were made to teachers and they were, in this way, urged to return completed questionnaires, with the result that the percentage of returned questionnaires was increased from 68 to over 91 percent.

As the second phase (testing) of the study was scheduled for May 1, 1969, it was decided to leave open the return date for the questionnaires until the final results of the tests came in. By June 15, 2,778 (more than 91 percent) of the 2,998 questionnaires were returned.

CODING AND PUNCHING

During the spring and summer of 1969 temporary staff were employed. With the assistance of the clerical staff of The Manitoba Teachers' Society and organized volunteer help from students and teachers the following tasks were performed:

(1) unpacking and checking returned questionnaires;

(2) sorting and checking the different answers in the questionnaires;

(3) coding each of the answers in the questionnaires;

(4) transferring coded answers to mark-sensitive paper for data processing.

The data processing of the questionnaires was carried out by the Research and Planning Division of the Manitoba Department of Youth and Education.

THE TESTING INSTRUMENTS

After careful study of various tests, it was the Commission's decision to use the Stanford Reading Achievement Test (SRAT) and the Otis-Lennon Mental Ability Test.

STANFORD ACHIEVEMENT TESTS—READING

According to Linden and Linden (1968, pp. 78-81) and Farr and Anastasiow (1969, pp. 42-45) Stanford Achievement Tests in Reading are designed in four (4) batteries; Primary I (Gr. 1-2.5), Primary II (Gr. 2.5-3.9), Intermediate I (Gr. 4-5.5), Intermediate II (Gr. 5.5-6.9). Each of these tests includes subtests for measuring word meaning and paragraph meaning. In addition, Primary I, II, and Intermediate I have a word study skills subtest. There are three forms for the Primary tests—X, Y, Z, and four forms (W, S, Y, Z) for the Intermediate tests. In this study, batteries Primary I and II, and Intermediate II, all of which are Form X, were used. Each of the subtests is timed.

The norms for this test have been established through a sample of the total pupil population of the U.S.A. For example, the computation of norms in grades one-three was based on the results of stratified random samples of approximately 10,000 pupils per grade. Reliability co-efficients indicate that these subtests are consistent in measurement of achievement. To establish test validity the authors of this test selected content based on textbooks, courses of study, and curriculum. All items of the tests were determined by administering sample items to pupils in the

grades for which the tests were intended. The correlations of the reading subtests with certain Mental Ability tests at all grades are low enough to make valid use of both the Stanford Reading Tests and intelligence tests to determine a need for reading improvement based on discrepancies between reading ability and mental ability.

Primary I is composed of NB-4 reading subtests. The Word Reading subtest requires the pupil to match a picture with one of the four words, thus measuring the ability of a pupil to analyze a word without aid of context. The Paragraph Meaning subtest requires the pupil to supply a correct word from four alternatives for thirty-eight (38) blanks in the thirty-three (33) paragraphs. This subtest measures the pupil's comprehension of main ideas, organization and sequence, inference and important details. The Word Study Skills subtest is composed of four separate parts which requires matching beginning sounds of words and letters, matching ending sounds of words and letters, and matching a spoken word with its written form. Basically the Word Study Skills subtest measures the pupil's ability to match written symbols with spoken sounds.

Primary I includes an additional subtest, that of Vocabulary. It measures vocabulary "independent of reading skill". According to Brown (1967) vocabulary reflects not only a pupil's school achievement but his home background. The vocabulary subtest assesses higher level comprehension of concepts represented by words and terms; measures knowledge of synonyms and simple definitions.

Primary II is composed of three subtests. The Word Meaning subtest measures the pupil's ability to read a sentence and select the correct word to complete the sentence. The Paragraph Meaning subtest utilizes the same procedure as the Primary I test. The Word Study Skills subtest, composed of three parts, measures auditory discrimination for beginning and ending sounds, and the pupil's ability to recognize the same sound in different words (visual phonics). The Intermediate II subtests are of the same form as Primary II, but do not include a Word Study Skills subtest.

THE OTIS-LENNON MENTAL ABILITY TEST (OL-MAT)

According to Linden and Linden (1968, pp. 43-47) the Otis-Lennon Mental Ability Test series (OL-MAT) edited in 1967 was designed to provide a comprehensive assessment of scholastic ability of pupils from kindergarten to grade twelve. The test is constructed for six levels: Primary I (Kindergarten, first half); Primary II (Grade I, first half); Elementary I (Grades 1.5 to 3.9); Elementary II (Grades 4.0 to 6.9); Intermediate (Grades 7.0 to 9.9); and Advanced (Grades 10.0 to 12.9). There are two forms, J and K. In this particular study Form J and levels Elementary I and Elementary II were used. Elementary I level samples the mental process of classification, following directions, quantitative reasoning, comprehension of verbal concepts and reasoning by analogy. The items are composed of: pictorial/geometric classification; pictorial/geometric analogies; quantitative reasoning; general information; picture vocabulary; and following directions. The Elementary II level measures similar mental processes but includes abstract reasoning abilities in place of reasoning by analogy. Elementary II items are: verbal comprehension (synonyms, antonyms, sentence completion, scrambled sentences); verbal reasoning; figural reasoning and quantitative reasoning.

THE TESTING PHASE

In May, 1969, the second phase of the study was carried out in the schools.

Before and during the testing period many questions of concern were raised by teachers involved in the study. Most questions revolved about the basic question, "Does the testing of pupils ultimately also test the teachers of a particular school?" The answer to this question is at least partly "yes". Such testing of pupils does to some degree test teachers as well, but it would be a distortion of facts if classroom scores were taken at face value as an index of teacher competence.

TESTING PROGRAM SEMINARS

It was decided by the Commission, for economic reasons, that the testing program be carried out by the classroom teachers. To ensure a uniform procedure in the total testing program The Manitoba Teachers' Society, in co-operation with Harcourt Brace and World, Inc., held fifteen seminars from April 16 to April 24. (A schedule of seminars appears in Appendix I).

By March 24, letters had been mailed to all superintendents and secretary-treasurers of unitary divisions providing details of the scheduled seminars and requesting that principals be permitted to attend a seminar during school time. Similar letters were sent to school inspectors, principals and teachers. (Copies of all of these letters appear in Appendix I). The scheduled seminars dealt with the following topics:

(1) brief description of the Manitoba Reading Study;

(2) nature and purpose of standardized tests;

(3) content of Otis-Lennon and Stanford tests;

(4) administration of the tests;

(5) scoring of the tests;

(6) interpretation of the test scores.

DISTRIBUTION OF TESTING MATERIALS AND RECORDING OF DATA

The design of the study specified a distinct period of time for the testing phase—May 1 to May 15.

With the assistance of the clerical staff of The Manitoba Teachers' Society and additional clerical staff temporarily employed by the Reading Commission, the following tasks were performed:

(1) sorting and packing appropriate numbers of tests, instructional booklets, summary sheets, conversion tables, etc., for each class and for each school participating in the study;

(2) supplying schools with additional test booklets and other materials as these were requested;

(3) receiving, unpacking and checking arriving parcels with tests and summary tables;

(4) sorting and double-checking, by hand, each summary table for completeness, coding errors, certain logical inconsistencies and accuracy of scoring. (Where errors had occurred it was sometimes possible to rectify them by reference to the test booklets or by contacting the teachers) ;

(5) spot-checking returned test booklets for each class (10 percent ratio) ;

(6) coding each summary table for computer key punching.

Thus, the information provided by the research instruments was coded by trained assistants and later punched onto IBM cards for processing. The card punching was carried out partially by the Research and Planning Division of the Manitoba Department of Youth and Education and partially by the IBM Corporation. The remainder of the data taken from the Manitoba Department of Youth and Education and from The Manitoba Teachers' Society was also punched onto the cards in the appropriate columns.

The first cards containing the teachers' responses from the questionnaires and the second set of cards containing student information were loaded on magnetic tape. The information from the Alpha File of The Manitoba Teachers' Society was loaded on the same magnetic tape.

CHAPTER 4

DESCRIPTIVE STATISTICS

PRELIMINARY REMARKS

The reader is cautioned to bear in mind several limitations inherent in the survey. Many precautions have been taken to minimize errors of several types, but errors can hardly have been eliminated completely. One must be conscious of the possibility of inaccuracies arising from the following sources:

1. **Sampling:** The steps taken to produce representative samples are described in the previous section. However, the possibility that plans were not accurately executed with respect to random selection of certain schools and pupils cannot be completely dismissed.

2. **Memory and Reporting.** Many items in the analysis stem from the reports of teachers. The existence of random errors is a certainty and the possibility of bias cannot lightly be dismissed. Because of the large numbers of teachers and pupils, random errors should have little effect upon means, but should be expected to reduce correlations.

3. **Encoding Responses:** It was necessary to convert questionnaire responses to a uniform code. Problems may have arisen from simple clerical errors on the part of coders. The volume of coding was so great that it was done, of necessity, by clerical personnel not highly expert in the materials of the study.

4. **Test Administration:** In most schools the tests were administered and scored by local school teachers or other school personnel. Although detailed instructions for administration were provided and briefing sessions were held, and although the tests were given with very liberal time limits, the possibility of some local deviations from specified testing procedure is not excluded. Weather conditions, also, in some localities prevented the mailing of the tests on time, particularly in northern regions. Bearing these limitations in mind, the reader should be aware of possible errors in interpreting the results that follow.

More meaningful results could have been obtained if the prime unit of analysis for all the results in this report had been the *School Division.* The procedures could have been improved still further if the school had been made the prime unit of analysis as there often are differences among schools within a single school division. However, the Commission decided to use an overall procedure of analysis in order to avoid undesirable comparisons between schools and school divisions.

THE TEACHER QUESTIONNAIRE (MRCQ)

In this section, descriptive statistics are presented for those school variables on which little or no information was available from sources other

than the questionnaire. It must be emphasized here that the present study was concerned essentially with a representative sample of schools and not with individual pupils. The study was not designed to obtain detailed information on each of the variables that the questions ir the MRCQ dealt with. Despite this, it was possible to estimate the trends of various aspects of reading in Manitoba. Graphs are presented (4.1 to 4.40) to show possible trends with respect to various reading practices in Manitoba. Each graph shows the percentage of responses to each of the questions on the MRCQ. For example, Figure 4.1 shows that approximately fifty percent of the teachers involved in the sample graduated from Manitoba Teachers' College. Figures 4.1 to 4.40 and Tables 4.1 to 4.40 correspond in the digits following the decimal to the numbers of the questions of the questionnaire.

TABLE 4.1

TEACHERS ATTENDING SPECIFIC TRAINING INSTITUTIONS

Graph Number	Name of Institution	Number of Teachers	Percent of Teachers Responding
I	Teachers trained at Brandon University (TTBU).....	56	2.2
II	Teachers trained at Brandon Teachers' College (TTBTC).....	314	11.9
III	Teachers trained at University of Manitoba (TTUM)..	567	21.5
IV	Teachers trained at Manitoba Teachers' College (TTMTC).....	1369	51.8
V	Teachers trained at other institutions (TTO).....	339	12.9
	Number of unanswered questions.....	47	1.7
	Number of answered questions.....	2645	98.3

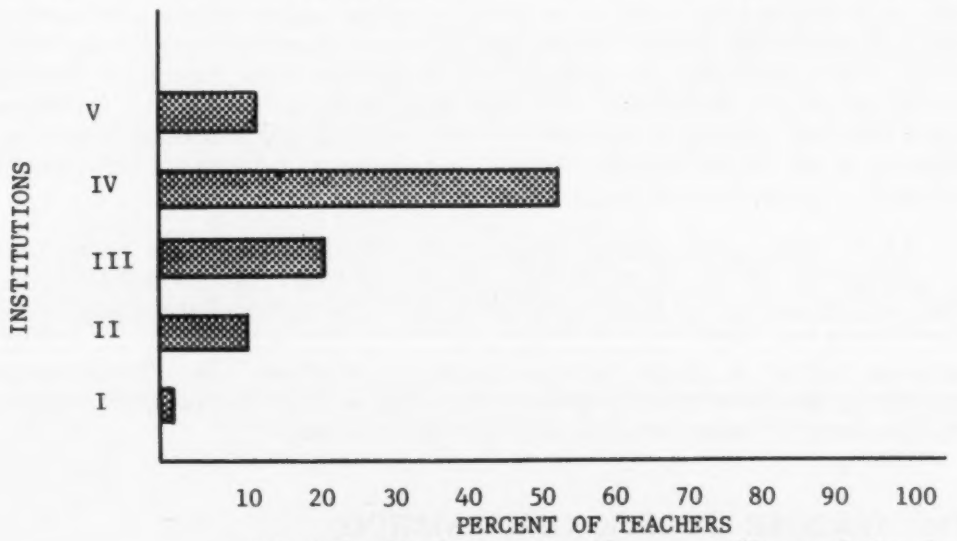

FIG. 4.1 Teachers attending specific training institutions.

The contents of Table 4.1* indicate the training institutions attended by the respondents to the questionnaire. The majority of respondents (51.8 percent) received their training at the Manitoba Teachers' College. It may be noted that 339 (12.9 percent) of the respondents received training at institutions other than the ones mentioned. Twenty-two (22) respondents received training at Dauphin and fourteen (14) at Manitou, Manitoba. Other provinces and countries represented were Saskatchewan (133), Ontario (46), England (22), U.S.A. (18), Alberta (17) and Quebec (12).

TABLE 4.2

TEACHERS TAKING SPECIFIC COURSES RELATED TO READING DURING PRE-SERVICE TRAINING

Graph Number	Name of Course	Number of Teachers	Percent of Teachers Responding
I	Primary methods course while teacher training (PMTT)	619	25.4
II	Language Arts course while teacher training (LATT)	315	12.9
III	Reading course while teacher training (RTT)	315	12.9
IV	Primary methods and Reading course while teacher training (PMRTT)	1167	47.8
V	Other courses while teacher training (OTT)	28	1.2
	Number of unanswered questions	248	9.2
	Number of answered questions	2444	90.8

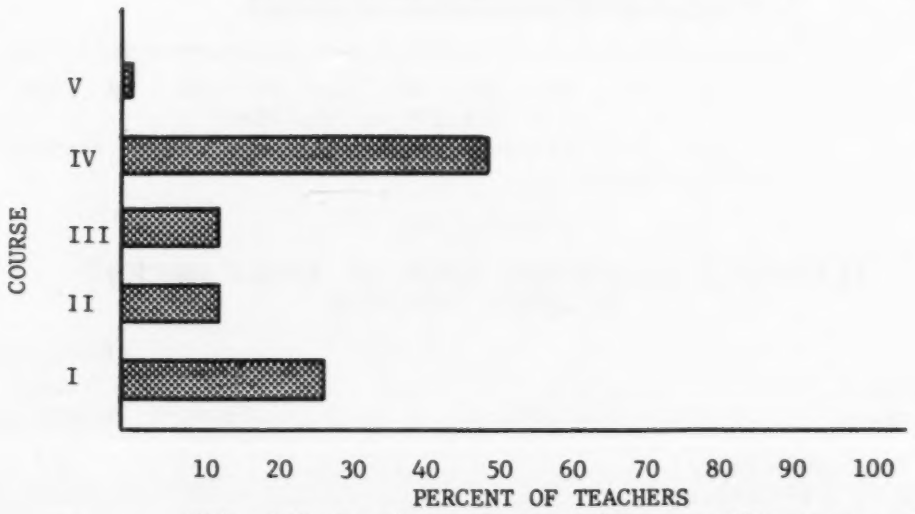

FIG. 4.2 Teachers having taken specific courses related to reading during pre-service training.

* In this section reference to Tables should be understood to refer also to related graphs, here Table 1 and Figure 1. In addition, each Table indicates the number of answered and unanswered questions for each of the items of the questionnaire. The numbers were obtained from the computer output.

TABLE 4.3

TEACHERS REPORTING A SPECIFIED NUMBER OF CREDIT COURSES IN READING SINCE TRAINING

Graph Number	Number of Courses	Number of Teachers	Percent of Teachers Responding
I	None	1760	69.9
II	One	611	24.3
III	Two	110	4.4
IV	Three	32	1.3
V	Four	8	0.4
	Number of questions unanswered	171	6.3
	Number of questions answered	2521	93.7

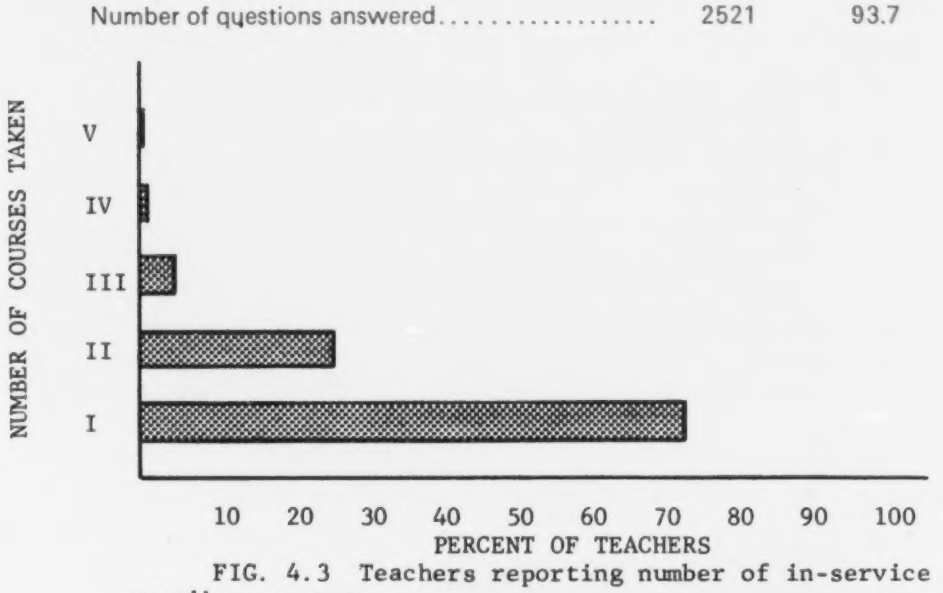

FIG. 4.3 Teachers reporting number of in-service reading courses.

TABLE 4.4

TEACHERS REPORTING DATE OF MOST RECENT READING COURSE

Graph Number	Year of Course	Number of Teachers	Percent of Teachers Responding
I	1968-1969	15	0.7
II	1967-1968	483	21.1
III	1966-1967	419	18.3
IV	1965-1966	261	11.4
V	1964-1965	175	7.7
VI	1963-1964	105	4.5
VII	1962-1963	115	5.1
VIII	Before 1962	722	31.5
	Number of unanswered questions	397	14.7
	Number of answered questions	2295	85.3

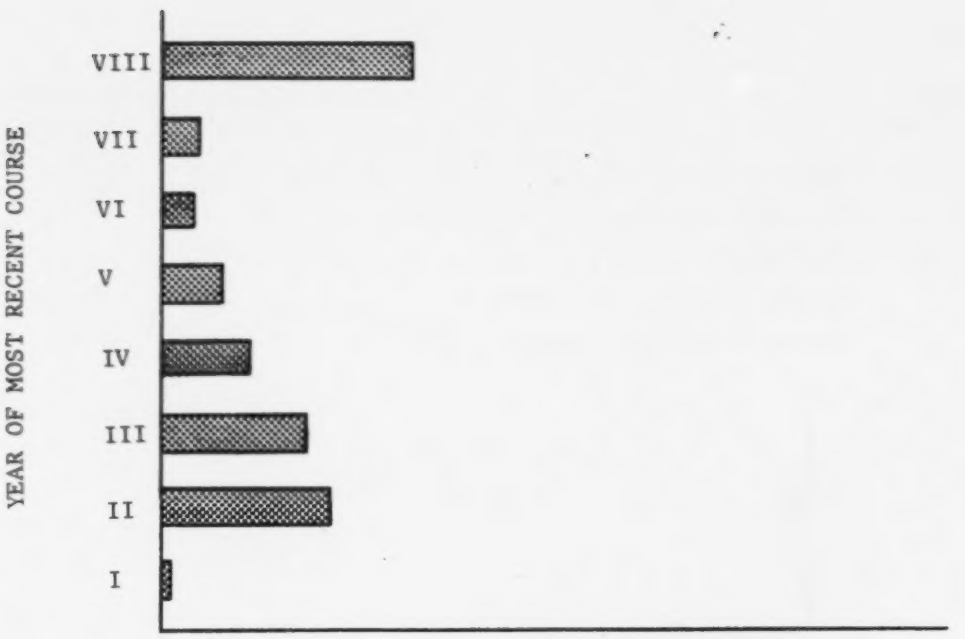

FIG. 4.4 Teachers reporting date of most recent reading course.

Tables 4.2, 4.3 and 4.4 indicate the types of courses in reading taken by the respondents, the number of courses taken since training, and the date of the last course taken, respectively. From Table 4.2 it can be seen that the majority (1,167) of the respondents had enrolled in primary methods and reading, followed by 619 respondents who took only primary methods. In response to item three concerning the number of courses in reading taken by respondents since training, Table 4.3 indicates 1,760 (69.9 percent) teachers had taken none. Only eight (0.4 percent) of the respondents had taken a total of four courses since their training. Table 4.4 indicates the date of the last course in reading taken by the respondents. It can be seen that 722 (31.5 percent) of the respondents had not taken a course since 1962. However, the table indicates an increase in frequency of courses taken recently. It is necessary to state here that frequencies for teachers taking a certain course are contingent upon the content of the courses.

TABLE 4.5

TEACHERS REPORTING SPECIFIC JOURNALS MOST HELPFUL FOR TEACHING READING

Graph Number	Name of Journal	Number of Teachers	Percent of Teachers Responding
I	Elementary English (HJEE)	77	4.1
II	Reading Teacher (HJRT)	85	4.5
III	The English Journal (HJEJ)	13	0.7
IV	The Instructor (HJI)	980	51.3

TABLE 4.5—Continued

Graph Number	Name of Journal	Number of Teachers	Percent of Teachers Responding
V	Grade Teacher (HJGT)	667	34.9
VI	Elementary School Journal (HJESJ)	13	0.7
VII	Other Journal (HJO)	78	4.1
	Number of unanswered questions	779	28.9
	Number of answered questions	1913	71.1

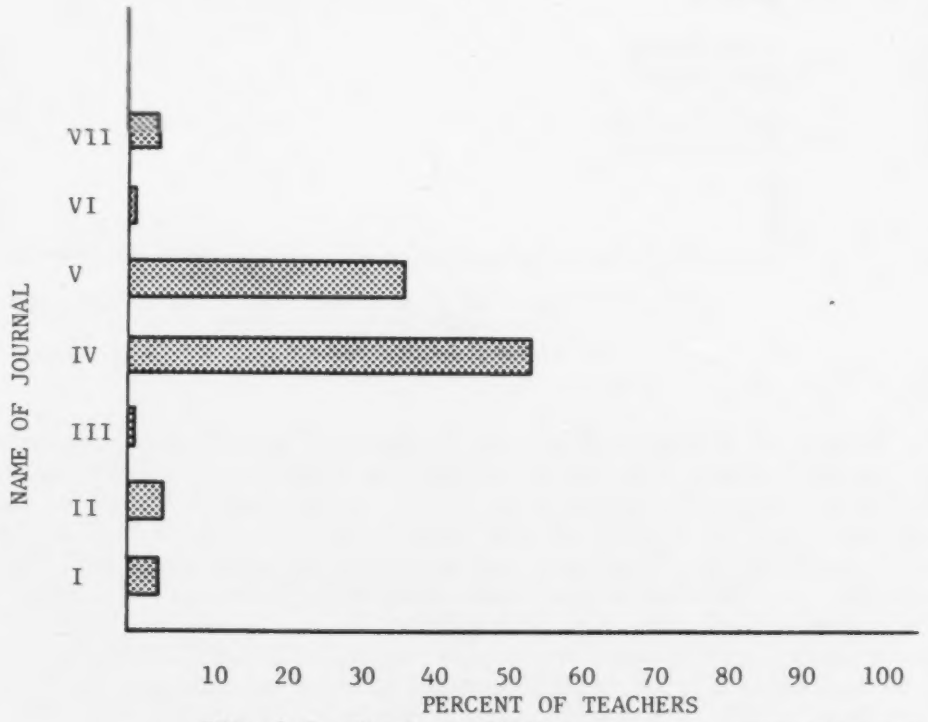

FIG. 4.5 Teachers finding specific journals most helpful for teaching reading.

TABLE 4.6

TEACHERS REPORTING MOST RECENT IN-SERVICE SESSION IN READING ATTENDED

Graph Number	Year of Session	Number of Teachers	Percent of Teachers Responding
I	Never	262	10.0
II	1968-1969	1344	51.0
III	1967-1968	817	31.0
IV	1966-1967	138	5.3
V	1965-1966	30	1.2
VI	1964-1965	22	0.9

TABLE 4.6—Continued

Graph Number	Year of Session	Number of Teachers	Percent of Teachers Responding
VII	1963-1964	4	0.2
VIII	1962-1963	19	0.8
	Number of questions unanswered	779	28.9
	Number of questions answered	1913	71.1

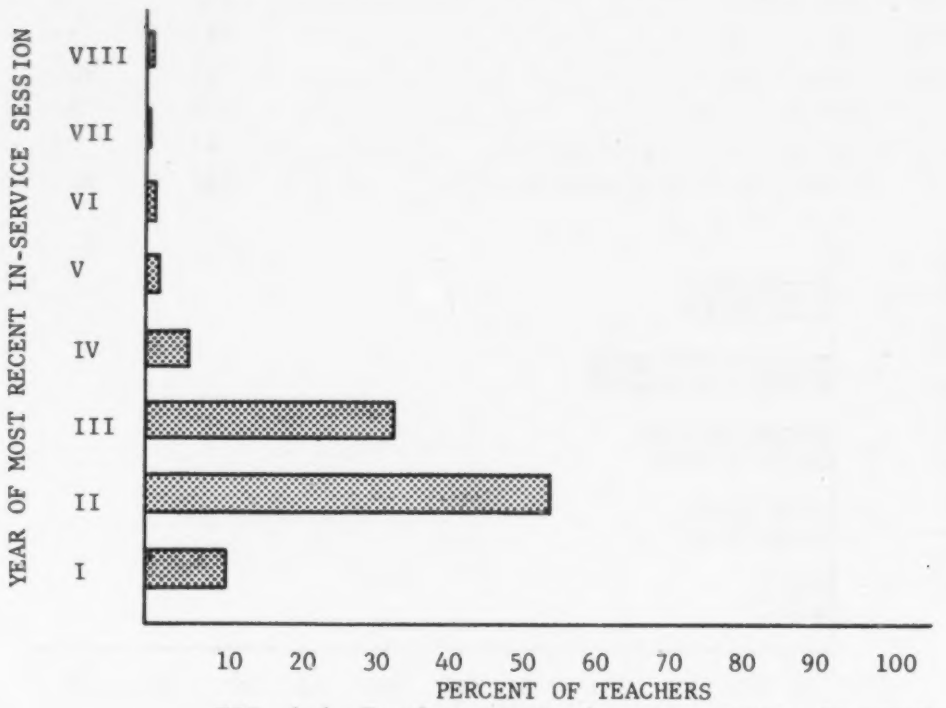

FIG. 4.6 Teachers reporting most recent in-service session in reading attended.

Tables 4.5 and 4.6 show the percentage of teachers specifying which journal they have found most useful and the most recent in-service session in reading they have attended. Table 4.5 indicates the journals that reading teachers found most helpful. *The Instructor* 980 (51.3 percent) and *The Grade Teacher* 667 (34.9 percent) were number one and number two choices.* Other journals that received some attention were *Reading Teacher* 85 (4.5 percent) and *Elementary English* 77 (4.1 percent). Another form of aid was in-service sessions. Table 4.6 indicates the most recent in-service sessions attended by respondents. Of the respondents, 1,344 (51 percent) had attended their last in-service session in 1968-1969. The second highest frequency appeared in 1967-1968. However, the third highest frequency indicates that 262 (10 percent) of the respondents *never* attended an in-service session designed for reading teachers.

* It should be noted here that the fact that 980 responding teachers found *The Instructor* most useful does not necessarily mean that other journals by definition were considered less useful. The high frequency of teachers who found *The Instructor* useful could be due to the fact that their schools subscribed only to this journal.

TABLE 4.7

TEACHERS REPORTING SPECIFIC PERCENTAGE OF CLASS TIME SET APART FOR READING PROGRAM

Graph Number	Percent of Time	Number of Teachers	Percent of Teachers Responding
I	20% or less	275	10.5
II	21% to 30%	475	18.0
III	31% to 40%	623	23.6
IV	41% to 50%	793	30.1
V	More than 50%	477	18.1
	Number of unanswered questions	49	1.8
	Number of answered questions	2643	98.2

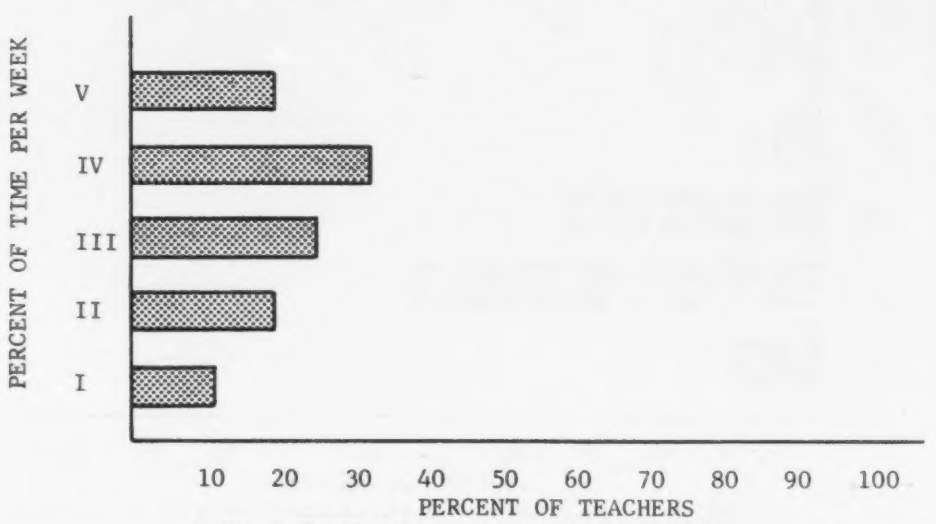

FIG. 4.7 Teachers reporting specific percentage of class time set apart for reading program.

Table 4.7 indicates the percentage of class time per week set apart for the reading program. It can be noted that the highest frequency (793) indicates that 30 percent of the respondents spent 41-50 percent of their class time in a reading program; 275 (10.5 percent) of the respondents spent twenty percent (20 percent) or less of their class time in reading and only 477 (18.1 percent) spent more than fifty percent (50 percent) of their class time in reading.

TABLE 4.8

TEACHERS REPORTING METHOD USED TO ASSESS READING READINESS OF CHILD

Graph Number	Type of Method	Number of Teachers	Percent of Teachers Responding
I	Reading Readiness assessed by Teacher Observation (RRTO)	422	38.3

TABLE 4.8—Continued

Graph Number	Type of Method	Number of Teachers	Percent of Teachers Responding
II	Reading Readiness assessed by Readiness Test (RRRT)	97	8.8
III	Reading Readiness assessed by Teacher Observation and Readiness Test (RRTORT)	561	50.9
IV	Reading Readiness assessed by Other Means (RRO)	23	2.1
	Number of unanswered questions	1589	59.0
	Number of answered questions	1103	41.0

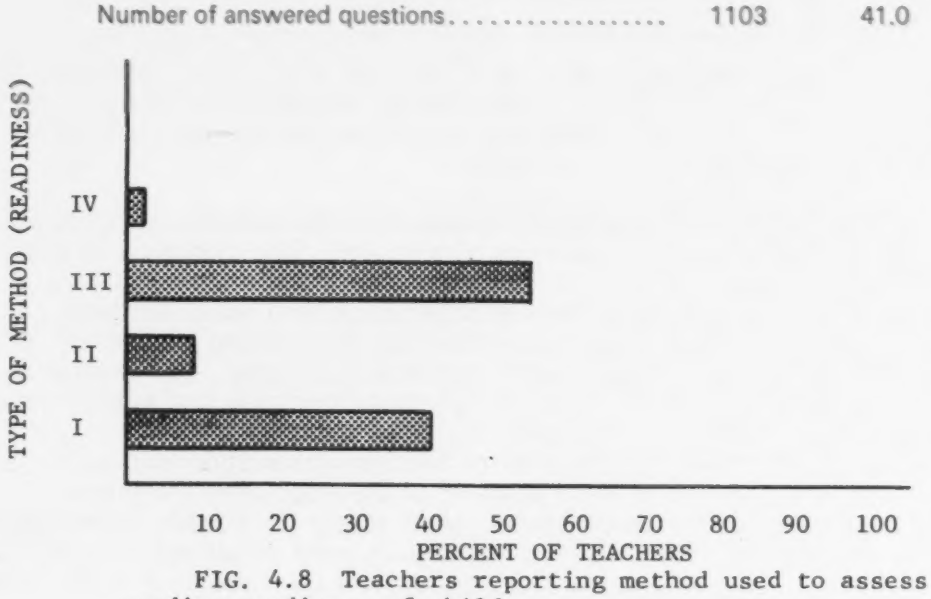

FIG. 4.8 Teachers reporting method used to assess reading readiness of child.

Note—This question was answered by Grade One teachers only.

TABLE 4.9

TEACHERS REPORTING METHOD USED TO ASSESS READING ABILITY OF CHILD

Graph Number	Type of Method	Number of Teachers	Percent of Teachers Responding
I	Child's Ability assessed by Published Test (CAPT)	77	3.1
II	Child's Ability assessed by Teacher Observation (CATO)	1115	43.7
III	Child's Ability assessed by Teacher Observation and Published Test (CATOPT)	1219	47.7
IV	Child's Ability assessed by Other Methods (CAO)	146	5.8
	Number of unanswered questions	135	5.0
	Number of answered questions	2557	95.0

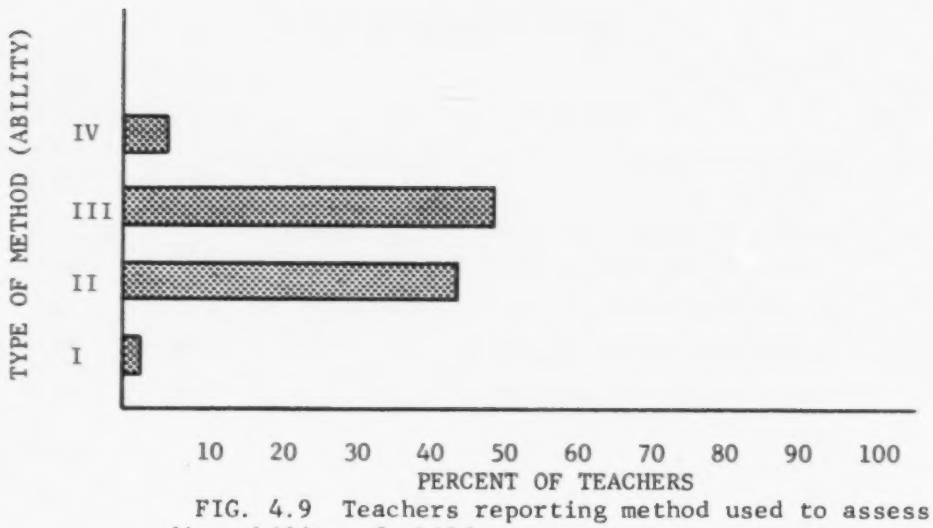

FIG. 4.9 Teachers reporting method used to assess reading ability of child.

Tables 4.8 and 4.9 indicate the responses of the teachers with reference to the method of reading readiness assessment. The statistics, as shown in Table 4.8, indicate that 561 (50.9 percent) respondents (Grade one teachers only) relied upon teacher observation and readiness tests: 422 (38.3 percent) relied solely upon teacher observation; while 97 (8.8 percent) of the respondents used readiness tests only. There were 658 (59.7 percent) who used readiness measures alone or in combination with observation. Table 4.9 indicates methods used to assess the pupil's reading ability. The combination of teacher-observation and published test was noted for 1,219 (47.7 percent) of the respondents whereas 1,115 (43.7 percent) of the respondents relied solely on teacher observation. Other methods including teacher-made tests were employed by over 100 respondents. The effects of such trends will be discussed in the later sections.

TABLE 4.10

TEACHERS ESTIMATING PERCENTAGE OF CHILDREN WHO READ BELOW THEIR POTENTIAL READING LEVEL (CRBPL)

Graph Number	Percentage of Children	Number of Teachers	Percent of Teachers Responding
I	0 to 10 percent	1194	47.9
II	11 to 20 percent	557	22.4
III	21 to 30 percent	313	12.6
IV	31 to 40 percent	170	6.9
V	41 to 50 percent	101	4.1
VI	Over 50 percent	162	6.5
	Number of unanswered questions	195	7.2
	Number of answered questions	2497	92.8

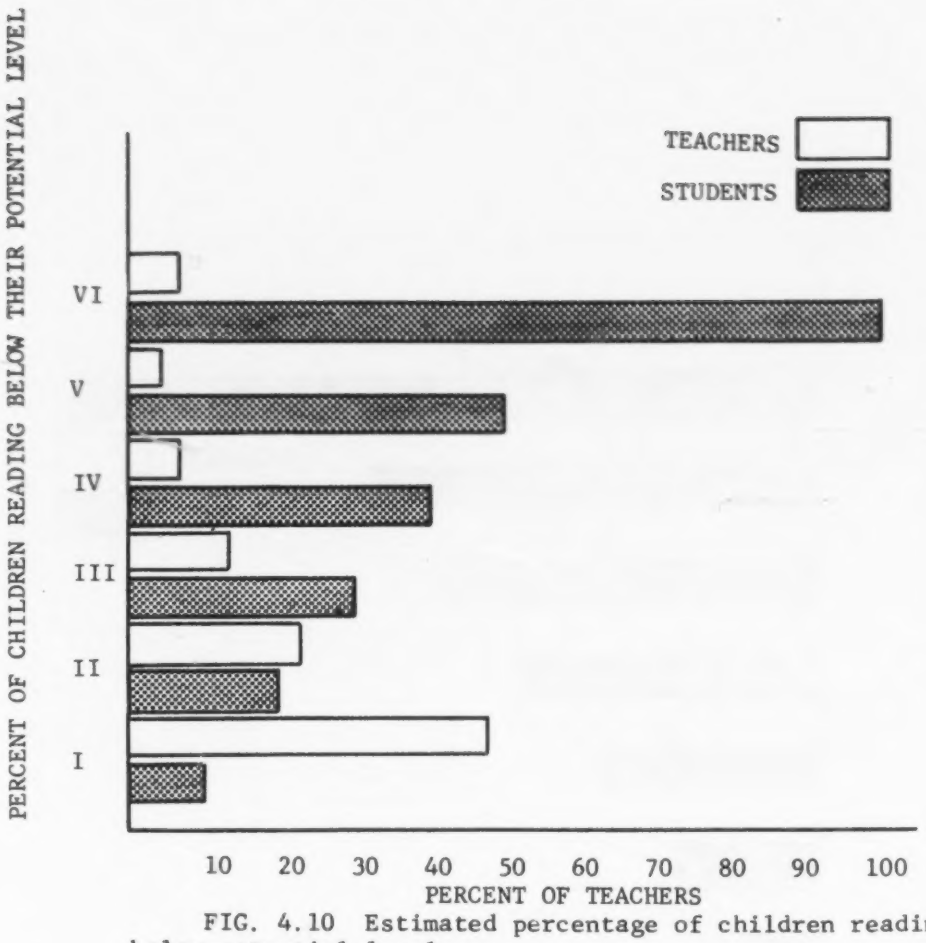

FIG. 4.10 Estimated percentage of children reading below potential level.

Table 4.10 indicates the percentage of pupils who were estimated to be reading below their potential level. The table indicates that 1,194 (47.9 percent) respondents reported 0 to 10 percent of pupils reading below grade level and 557 (22.4 percent) respondents reported 11 to 20 percent of pupils reading below grade level. Only 162 (6.5 percent) of the respondents indicated that more than fifty percent of the pupils were reading below potential grade level.

TABLE 4.11

TEACHERS REPORTING PERCENTAGE OF CLASS HAVING KINDERGARTEN EXPERIENCE

Graph Number	Percentage of Class	Number of Teachers	Percent of Teachers Responding
I	0 to 10 percent	952	37.2
II	11 to 20 percent	85	3.4
III	21 to 30 percent	88	3.5
IV	31 to 40 percent	98	3.9
V	41 to 50 percent	148	5.8
VI	51 to 60 percent	127	5.0

TABLE 4.11—Continued

Graph Number	Percentage of Class	Number of Teachers	Percent of Teachers Responding
VII	Over 61 percent	1065	47.6
	Number of unanswered questions	129	4.7
	Number of answered questions	2563	95.3

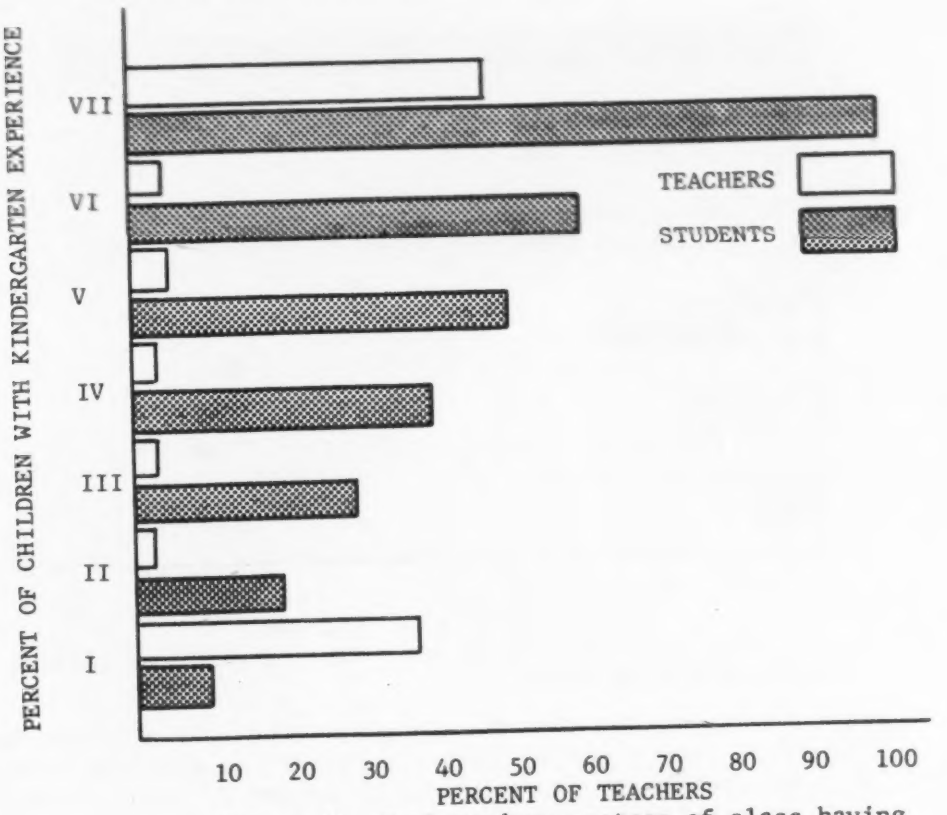

FIG. 4.11 Estimated percentage of class having kindergarten experience.

TABLE 4.12

TEACHERS REPORTING SPECIFIC TYPES OF KINDERGARTEN EXPERIENCE OF CHILDREN

Graph Number	Type of Kindergarten Experience	Number of Teachers	Percent of Teachers Responding
I	Half-day Kindergarten Experience (HDKE)	1658	92.7
II	Half-day Montessori Experience (HDME)	8	0.5
III	Full-day Kindergarten Experience (FDKE)	26	1.5
IV	6-Week Kindergarten Experience (6WKE)	25	1.4
V	Other Type of Kindergarten Experience (OKE)	72	4.1
	Number of unanswered questions	903	33.5
	Number of answered questions	1789	66.5

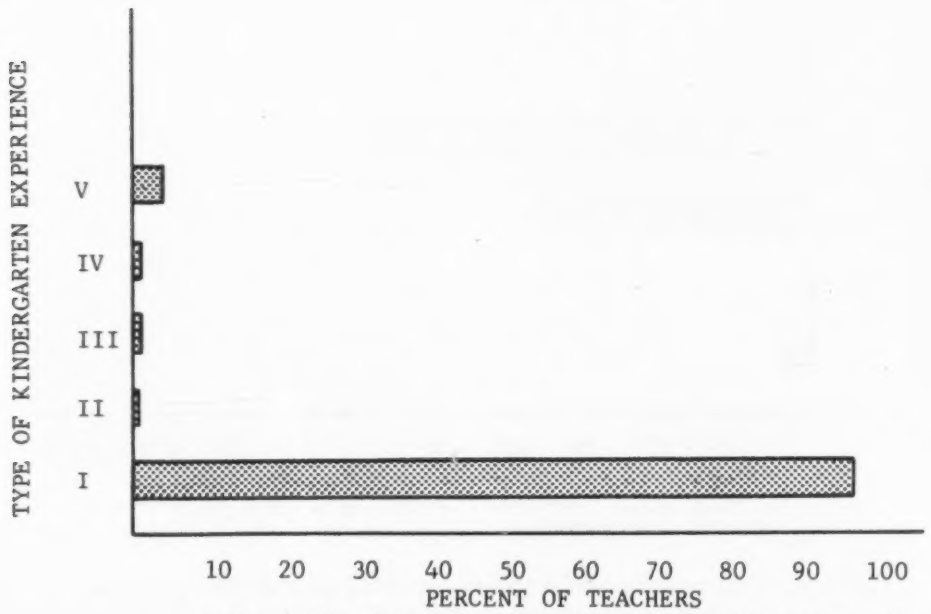

FIG. 4.12 Teachers reporting specific types of kindergarten experience of children.

Tables 4.11 and 4.12 relate to kindergarten experience. Table 4.11 indicates that 1,065 (47.6 percent) of the respondents reported that more than 61 percent of their class had kindergarten experience; followed by 952 (37.2 percent) who indicated that 0-10 percent had kindergarten experience.

The data in Table 4.12 indicate that 1,658 (92.7 percent) of the respondents reported pupils with half-day kindergarten experience. The other types of kindergarten experiences reported by 1.2 (4.1 percent) of the respondents were private kindergarten, limited kindergarten—33 (1.15 percent), and the Society for Crippled Children—11 (0.61 percent). Only 66.5 percent of the respondents completed this item.

TABLE 4.13

TEACHERS REPORTING CUT-OFF DATES FOR ENTRANCE TO KINDERGARTEN

Graph Number	Entrance Age	Number of Teachers	Percent of Teachers Responding
I	5 Years Old by September 30 (KE5S)	72	4.4
II	5 Years Old by October 31 (KE5O)	11	0.7
III	5 Years Old by November 30 (KE5N)	591	35.5
IV	5 Years Old by December 31 (KE5D)	963	57.8
V	Kindergarten Entrance at some Other Age (KEO)	31	1.9
	Number of unanswered questions	1024	38.0
	Number of answered questions	1668	62.0

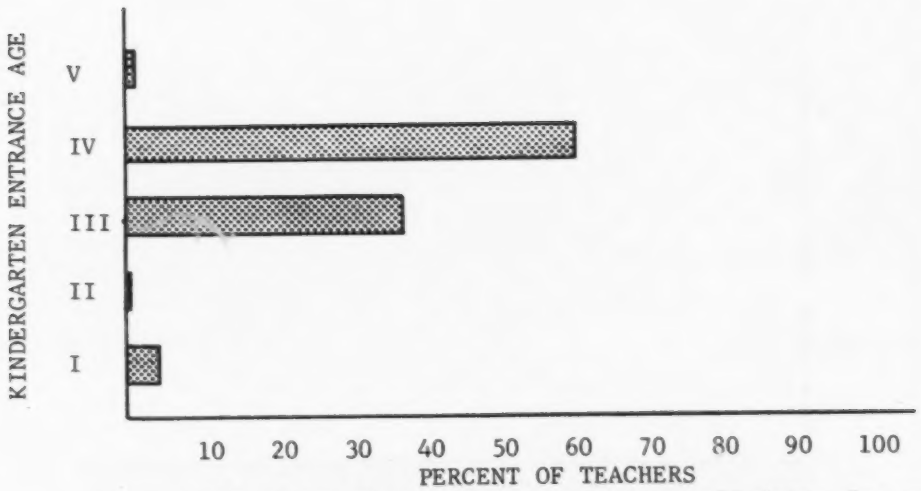

FIG. 4.13 Teachers reporting cut-off dates for entrance to kindergarten.

Table 4.13 shows that 963 (57.8 percent) of the respondents reported that entrance age for kindergarten in their school was five years by December 31. Five hundred and ninety-one (35.5 percent) indicated that the age was five years by November 30.

TABLE 4.14

TEACHERS REPORTING CUT-OFF DATES FOR ENTRANCE TO GRADE ONE

Graph Number	Entrance Age	Number of Teachers	Percent of Teachers Responding
I	6 Years Old by September 30 (G16S)	82	3.3
II	6 Years Old by October 31 (G16O)	20	0.8
III	6 Years Old by November 30 (G16N)	809	31.8
IV	6 Years Old by December 31 (G16D)	1597	62.8
V	Grade One Entrance at some Other Age (G1O)	38	1.5
	Number of unanswered questions	146	5.4
	Number of answered questions	2546	94.6

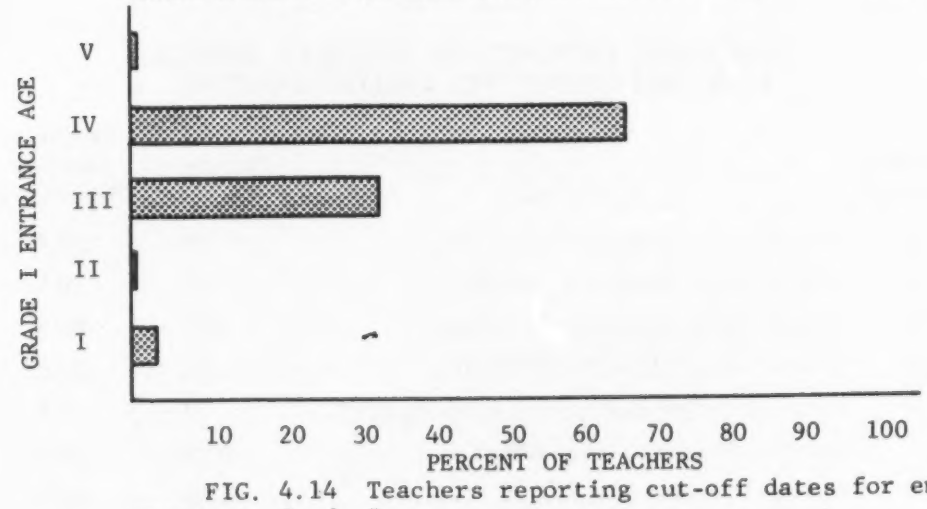

FIG. 4.14 Teachers reporting cut-off dates for entrance to Grade I.

Table 4.14 indicates that 1,597 (62.8 percent) of the respondents reported a grade one entrance age of six by December 31. An entrance age of six by November 30 was reported by 809 (31.8 percent) of the respondents.

TABLE 4.15

TEACHERS REPORTING SPECIFIC TYPES OF CLASSROOM ORGANIZATION USED FOR READING INSTRUCTION

Graph Number	Type of Organization	Number of Teachers	Percent of Teachers Responding
I	Classroom Organization Self-contained (CO:Sc) . .	2281	85.4
II	Classroon Organization Departmentalized (CO:D) .	30	1.2
III	Classroom Organization Joplin-Type (CO:J)	85	3.2
IV	Classroom Organization Within-Grade Groupings (CO:GG)	167	6.3
V	Classroom Organization Non-Graded (CO:NG) . . .	59	2.3
VI	Other type of Classroom Organization (CO:O)	49	1.9
	Number of unanswered questions	21	0.7
	Number of answered questions	2671	99.3

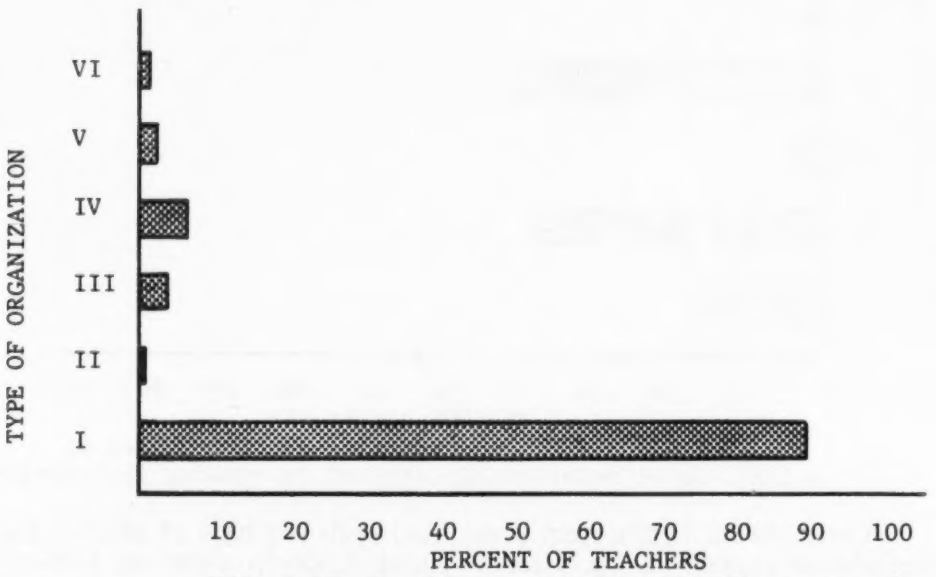

FIG. 4.15 Teachers reporting specific types of classroom organization used for reading instruction.

Table 4.15 shows the types of organization used for reading in the classroom. The majority of respondents, 2,281 (85.4 percent), reported that they used the self-contained classroom method. Other types of organization used in the classrooms were departmentalization, the Joplin-type, within-grade grouping and nongrading.

TABLE 4.16

TEACHERS REPORTING SPECIFIC TYPES OF TEACHER-PUPIL RELATIONSHIP APPLIED IN READING INSTRUCTION

Graph Number	Type of T-P Relationship	Number of Teachers	Percent of Teachers Responding
I	Teacher-Pupil Relationship Unstructured (no grouping) (TPR:U)	465	17.5
II	Teacher-Pupil Relationship Grouping by Levels (TPR:GL)	981	36.8
III	Teacher-Pupil Relationship Individualized Instruction (TPR:II)	90	3.4
IV	Teacher-Pupil Relationship Varies Grouping for Specific Purposes (TPR:V)	1064	40.0
V	Other Type of Teacher-Pupil Relationship (TPR:O)	66	2.5
	Number of unanswered questions	26	0.1
	Number of answered questions	2666	99.9

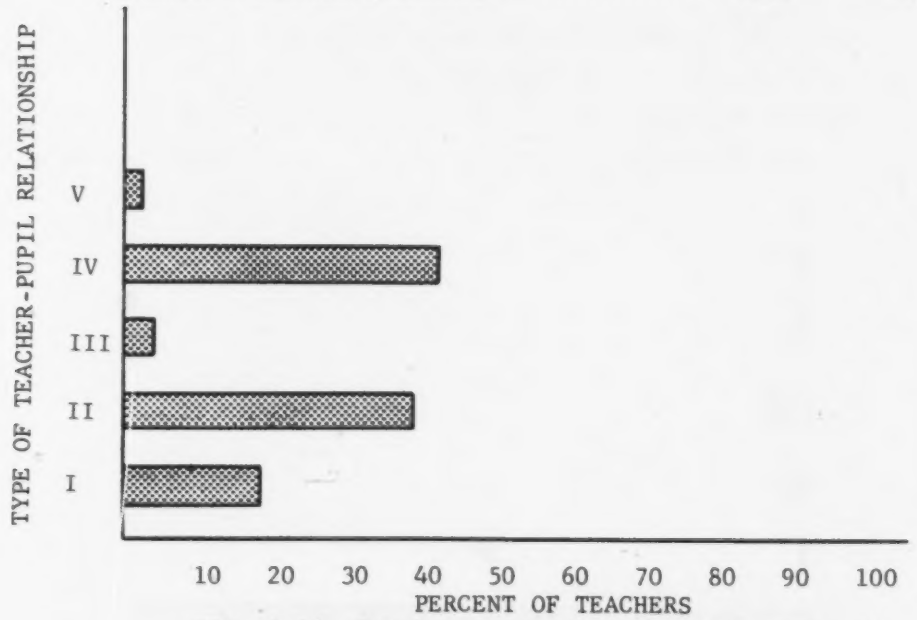

FIG. 4.16 Teachers reporting specific types of teacher-pupil relationship applied in reading instruction.

In responding to the item concerned with the type of teacher-pupil relationship applied to basic reading instruction in class, as shown in Table 4.16, 1,064 (40 percent) of the respondents reported that they used groupings by levels and re-grouping for specific purposes. Nine hundred and eighty-one (36.8 percent) of the respondents reported using grouping by levels only; 465 (17.5 percent) reported using no grouping (whole class was taught together). Ninety (3.4 percent) used individualized instruction. Responses to the questionnaire also indicated that 44 respondents used no grouping for basic courses but used grouping for additional skills exercises.

TABLE 4.17

TEACHERS REPORTING METHOD OF DETERMINING CLASS GROUPINGS

Graph Number	Method of Determination	Number of Teachers	Percent of Teachers Responding
I	Grouping Determined by Testing Only (G:T).....	26	1.2
II	Grouping Determined by Teacher Observation Only (G:TO).....	393	17.1
III	Grouping Determined by Combination of Methods (G:C).....	1873	81.2
IV	Grouping Determined by Other Means.....	15	0.7
	Number of unanswered questions.....	385	14.3
	Number of answered questions.....	2307	85.7

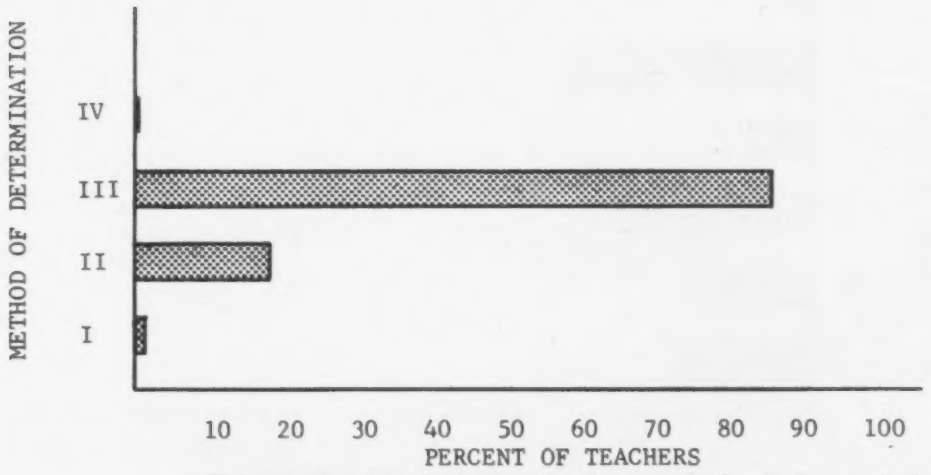

FIG. 4.17 Teachers reporting method of determining class groupings.

Table 4.17 indicates how grouping practices were determined within classes. The majority, 1,873 (81.2 percent), reported using a combination of testing and teacher-observation; 393 (17.1 percent) reported using teacher observation only; 26 (1.2 percent) reported use of tests only. It is of interest to note here that 385 (14.3 percent) of the teachers did not answer this item.

TABLE 4.18

TEACHERS REPORTING SPECIFIC TYPES OF STANDARDIZED TESTS USED FOR CLASS GROUPING PURPOSES

Graph Number	Type of Test	Number of Teachers	Percent of Teachers Responding
I	Readiness Tests Determine Class Grouping (CG:RT)	191	17.1
II	Diagnostic Tests Determine Class Grouping (CG:DT).....	174	15.5
III	Achievement Tests Determine Class Grouping (CG:A).....	280	25.0

TABLE 4.18—Continued

Graph Number	Type of Test	Number of Teachers	Percent of Teachers Responding
IV	Ability Tests Determine Class Grouping (CG:AbT)	89	8.0
V	Combination of Tests Determine Class Grouping (CG:C)	355	31.7
VI	Other Methods Used to Determine Class Grouping (CG:O)	34	3.1
	Number of unanswered questions	1569	58.2
	Number of answered questions	1123	41.8

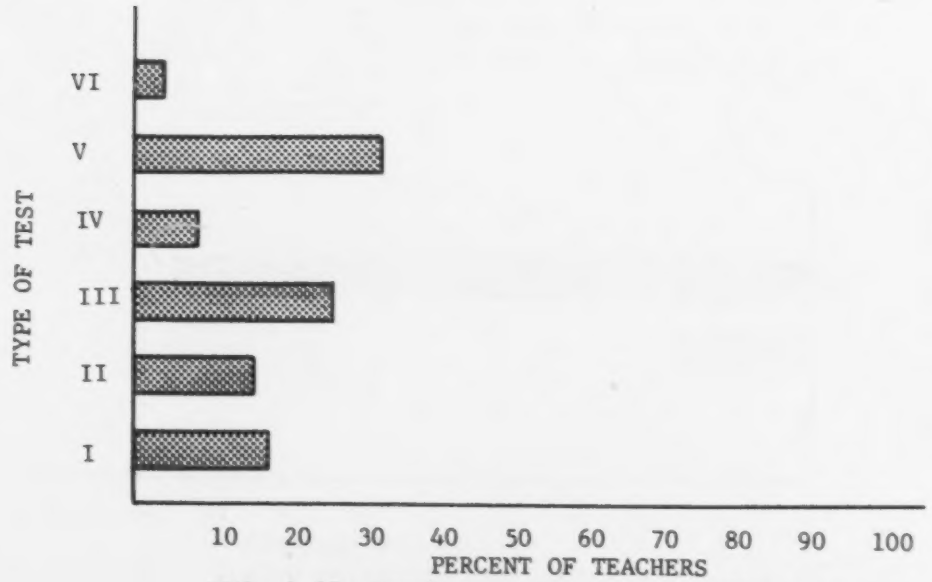

FIG. 4.18 Teachers reporting specific types of standardized tests used for class grouping purposes.

Note—This question was answered only if standardized tests were used.

Table 4.18 indicates the type of standardized tests used to determine grouping practices if standardized tests were used. Of the 1,123 (41.8 percent) teachers who answered this item, 355 (31.7 percent) used a combination of readiness, diagnostic, achievement and ability tests: 280 (25 percent) used achievement tests: 191 (17.1 percent) used readiness tests: 174 (15.5 percent) used diagnostic tests: and 89 (8 percent) used ability tests.

TABLE 4.19

TEACHERS INDICATING SPECIFIC TYPES OF TEACHER-MADE TESTS USED FOR CLASS GROUPING PURPOSES

Graph Number	Type of Test	Number of Teachers	Percent of Teachers Responding
I	Readiness Test (TMT:R)	100	6.7
II	Diagnostic Test (TMT:D)	162	10.8

TABLE 4.19—Continued

Graph Number	Type of Test	Number of Teachers	Percent of Teachers Responding
III	Achievement Test (TMT:A)	217	14.4
IV	Combination of Tests (TMT:C)	1032	68.3
	Number of unanswered questions	1181	43.8
	Number of answered questions	1511	56.2

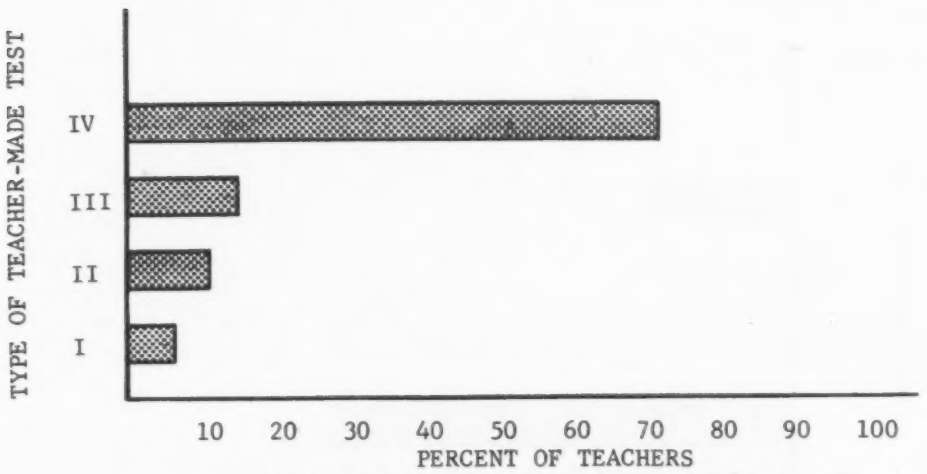

FIG. 4.19 Teachers indicating specific types of teacher-made tests used for class.

Note—This question was answered only if teacher-made tests were used.

Table 4.19 shows the type of teacher-made tests used to determine grouping practices if teacher-made tests were used. Of the 1,511 (56.2 percent) teachers who answered this item, 1,032 (68.3 percent) stated they used a combination of readiness, diagnostic and achievement tests: 217 (14.4 percent) used achievement tests; 162 (10.8 percent) used diagnostic tests; and 100 (6.7 percent) used readiness tests.

TABLE 4.20

TEACHERS REPORTING PRINCIPAL TYPES OF BASIC INSTRUCTIONAL MATERIALS

Graph Number	Type of Materials	Number of Teachers	Percent of Teachers Responding
I	Basic Instruction Materials: Basal Reader Only (BIM:BR)	531	20.1
II	Basic Instruction Material: Basal Reader with Supplementary Material (BIM:BRS)	1546	58.5
III	Basic Instruction Material: Trade Books (Library Books) (BIM:TR)	17	0.7
IV	Basic Instruction Material: Programmed Material (BIM:PM)	14	0.6
V	Basic Instruction Material: Combination of Materials (BIM:C)	489	18.5

TABLE 4.20—Continued

Graph Number	Type of Materials	Number of Teachers	Percent of Teachers Responding
VI	Basic Instruction Material: Pupil Composed Material without Basal Reader (BIM:PC)	4	0.2
VII	Basic Instruction Material: Other Specified Type (BIM:O)	46	1.8
	Number of unanswered questions	45	1.6
	Number of answered questions	2647	98.4

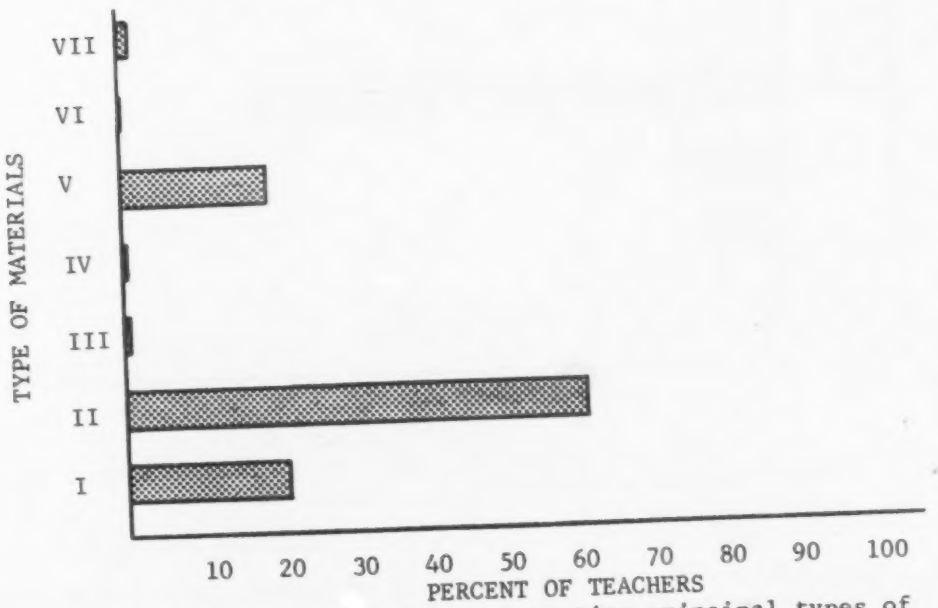

FIG. 4.20 Teachers reporting principal types of basic instructional materials.

Table 4.20 indicates the model of materials used for basic instruction in teachers' present classes. One thousand, five hundred and forty-six (58.5 percent) of the respondents reported using basal readers with supplementary materials; 531 (20.1 percent) reported using basal readers only; 489 (18.5 percent) reported using a combination of basal readers, trade books and programmed materials. Reporting trade (library) books as the principal type of materials used were 17 (0.7 percent) of the respondents and reporting programmed materials were 14 (0.6 percent) of the respondents.

TABLE 4.21

TEACHERS REPORTING PREDOMINANT USE OF SPECIFIED BASAL READING SERIES

Graph Number	Basal Reader Series	Number of Teachers	Percent of Teachers Responding
I	Ginn & Co. Basal Reader Used Predominantly (PR:GC)	40	1.7
II	Houghton Mifflin (Thom. Nelson) Basal Reader Used Predominantly (PR:HM)	13	0.6

TABLE 4.21—Continued

Graph Number	Basal Reader Series	Number of Teachers	Percent of Teachers Responding
III	Copp-Clark Basal Reader Used Predominantly (PR:C-C)	2117	85.3
IV	Lippincott Basal Reader Used Predominantly (PR:L)	5	0.3
V	Gage Basal Reader Used Predominantly (PR:G)	57	2.3
VI	Winston Basal Reader Used Predominantly (PR:W)	10	0.5
VII	MacMillan Basal Reader Used Predominantly (PR:Mac)	19	0.8
VIII	Collier-MacMillan (Harris Clark) Basal Reader Used Predominantly (PR:C-Mac)	151	6.1
IX	Other Basal Reader Used Predominantly (PR-O)	70	2.9
	Number of unanswered questions	210	7.8
	Number of answered questions	2482	92.2

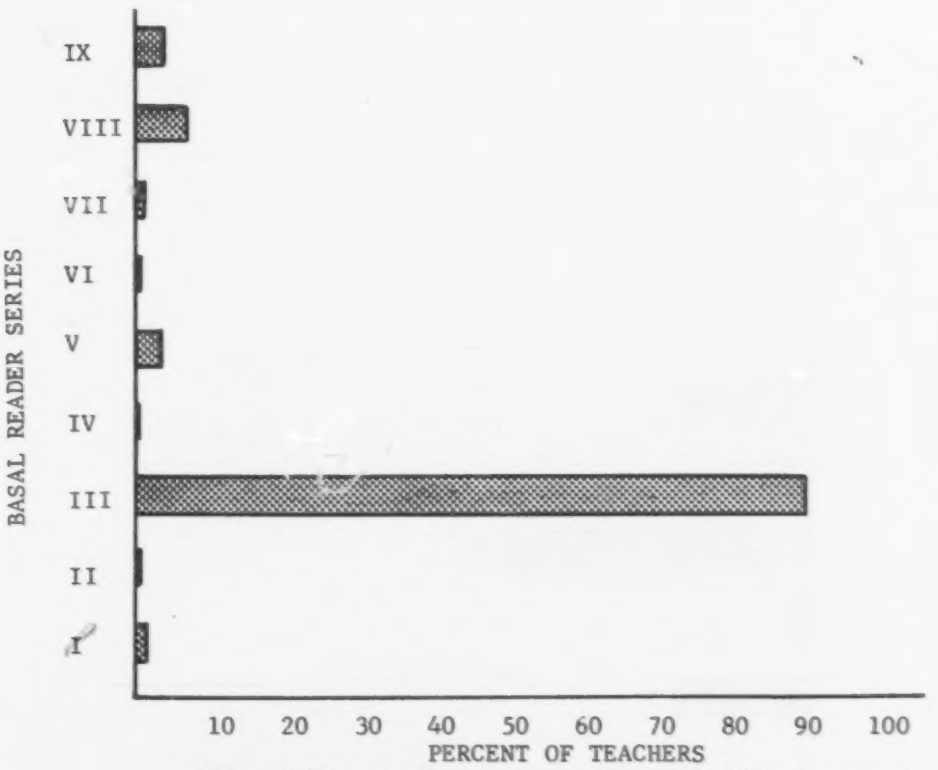

FIG. 4.21 Teachers reporting predominant use of specified basal reading series.

Note—This question was to be answered only if Basal Readers were used by the teacher.

Table 4.21 presents data relevant to the basal series used in class. The table indicates that 2117 (85.3 percent) respondents reported they used the Copp-Clark series; 151 (6.1 percent) used Collier-MacMillan; 57 (2.3 percent) used Gage; 40 (1.7 percent) used Ginn & Company. Of the respondents using **other** series, 54 used a combination of Copp-Clark and Collier-MacMillan, and 13 used Copp-Clark and Gage series.

TABLE 4.22

TEACHERS REPORTING MOST FREQUENTLY USED OF SPECIFIED SUPPLEMENTARY READING MATERIALS

Graph Number	Supplementary Materials	Number of Teachers	Percent of Teachers Responding
I	Supplementary Reading Materials Used: Self-Instructional Material (SRM:I)	267	10.8
II	Supplementary Reading Materials Used: Programmed Material (SRM:P)	81	3.3
III	Supplementary Reading Materials Used: Audio-Visual Aids (SRM:AV)	21	0.9
IV	Supplementary Reading Materials Used: Skills Supplement (SRM:SS)	423	17.0
V	Commercially Duplicated Materials: Supplementary Reading Materials Used (SRM:CD)	51	2.1
VI	Supplementary Reading Materials Used: Teacher-Made Duplicated Materials (SRM:TD)	977	39.3
VII	Supplementary Reading Materials Used: Supplementary Phonics Program (SRM:SPP)	143	5.8
VIII	Supplementary Reading Materials Used: Trade Books (SRM:T)	385	15.5
IX	Supplementary Reading Materials Used: Some Other Material (SRM:O)	142	5.8
	Number of unanswered questions	202	7.5
	Number of answered questions	2490	92.5

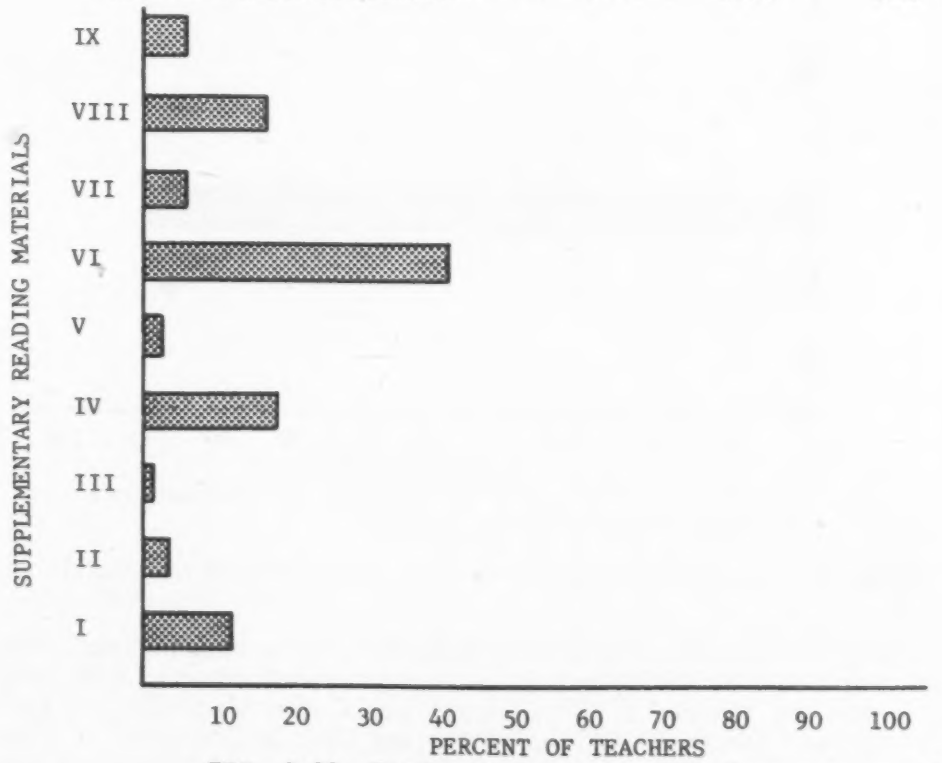

FIG. 4.22 Teachers reporting most frequent use of supplementary reading materials.

Table 4.22 indicates the supplementary reading materials used most frequently in class. The table shows 977 (39.3 percent) respondents using teacher-made duplicated materials; 423 (17 percent) using skills supplement (*e.g.* skill-text workbooks); 385 (15.5 percent) using trade books (library books); and 267 (10.8 percent) respondents reporting using self-instructional materials such as SRA Lab.

Other supplementary reading materials used were supplementary phonics programs and programmed material.

TABLE 4.23

TEACHERS REPORTING ASSISTANCE IN ORGANIZING OR PLANNING CLASSROOM READING ACTIVITIES

Graph Number	Assistance Received or Not	Number of Teachers	Percent of Teachers Responding
I	Teachers Receiving Assistance.....	752	28.4
II	Teachers Not Receiving Assistance.....	1902	71.7
	Number of unanswered questions.....	38	1.4
	Number of answered questions.....	2654	98.6

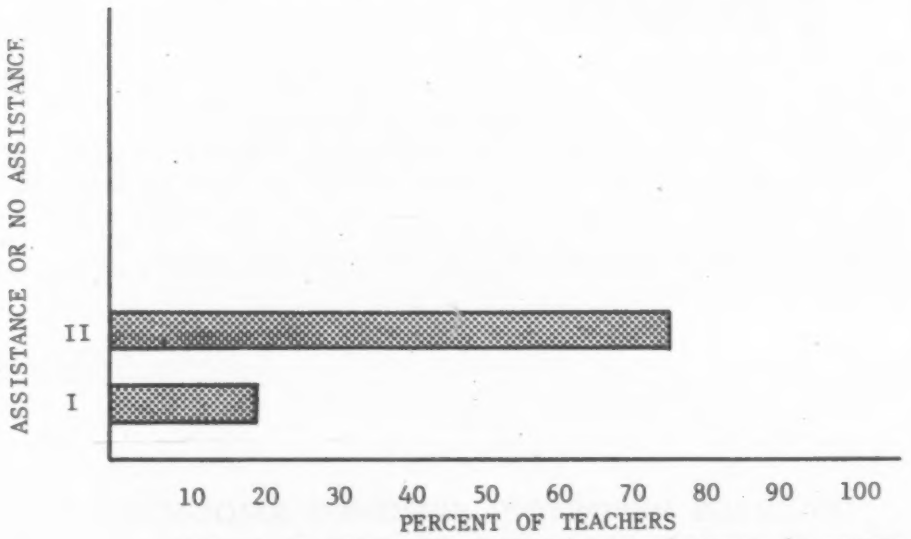

FIG. 4.23 Teachers reporting assistance in organizing and planning classroom reading activities.

TABLE 4.24

TEACHERS INDICATING SPECIFIC SOURCE OF MAJOR ASSISTANCE IN PLANNING CLASSROOM READING ACTIVITIES

Graph Number	Source	Number of Teachers	Percent of Teachers Responding
I	Major Assistance Received from Principal (AR:P).	257	34.0
II	Major Assistance Received from Supervisor (AR:S)	336	44.4

TABLF 4.24—Continued

Graph Number	Source	Number of Teachers	Percent of Teachers Responding
III	Major Assistance Received from Reading Consultant (AR:RC)	148	19.6
IV	Major Assistance Received from Inspector (AR:I)	17	2.3
	Number of unanswered questions	758	28.2
	Number of answered questions	1934	71.8

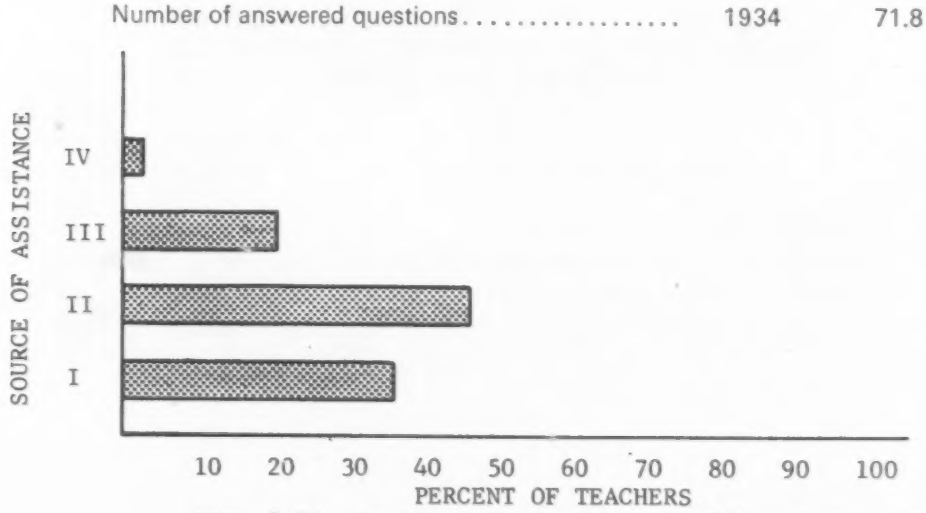

FIG. 4.24 Teachers indicating specific source of major assistance in planning classroom reading activities.

Note—This question was answered only if assistance was received.

TABLE 4.25

TEACHERS REPORTING SPECIFIED AMOUNTS OF TIME IN WHICH PLANNING OR ORGANIZATIONAL HELP IS AVAILABLE

Graph Number	Percent of Time	Number of Teachers	Percent of Teachers Responding
I	Help is Very Seldom Available (H:SA)	94	11.8
II	Help is Available as the Need is Felt (H:AN)	680	84.9
III	Extensive Consultation is Available (H:EC)	27	3.4
	Number of unanswered questions	1891	70.2
	Number of answered questions	801	29.8

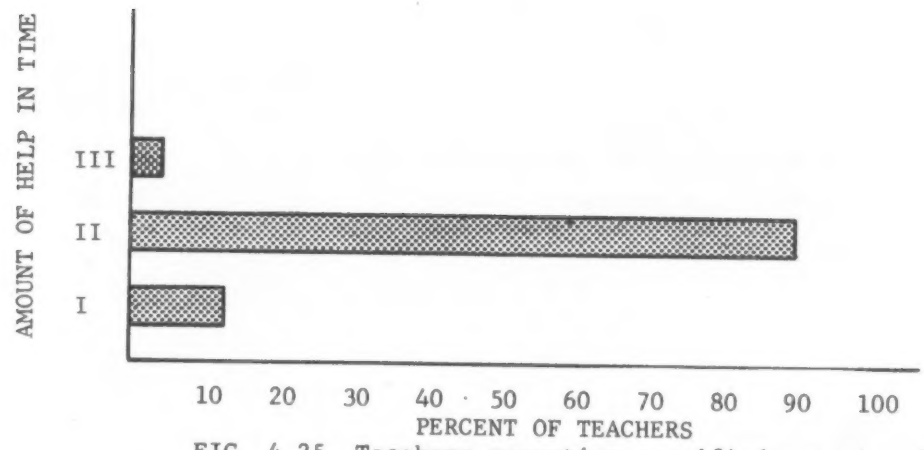

FIG. 4.25 Teachers reporting specified amounts of time in which planning or organizational help is available.

Note—This question was answered only if any assistance was received.

Tables 4.23, 4.24, and 4.25 indicate the type of assistance available in organizing and planning reading activities in the classroom. Table 4.23 indicates that the majority of the respondents, 1,902 (71.7 percent), reported receiving no aid. Table 4.24 indicates the source of major assistance for the 752 (28.4 percent) respondents who reported that they did receive aid; 336 (44.4 percent) reported receiving aid from a supervisor; 257 (34 percent) reported receiving aid from principals; 148 (19.6 percent) reported they received aid from reading consultants; and 17 (2.3 percent) reported receiving aid from inspectors.

Table 4.25 indicates the availability of various kinds of aid to the teacher. Of the respondents, 680 (84.9 percent) reported receiving help as need arose; 94 (11.8 percent) reported receiving help very seldom; 27 (3.4 percent) reported availability of extensive consultation.

TABLE 4.26

TEACHERS INDICATING SPECIFIED AMOUNTS AND SOURCE OF INDIVIDUAL HELP IN READING OUTSIDE REGULAR CLASS TIME

Graph Number	Amount of Individual Help	Number of Teachers	Percent of Teachers Responding
I	Pupils Receive No Extra Help Outside Class (PH:NOC)	665	25.2
II	Pupils Receive Very Little Extra Help (PH:LOC)	762	28.9
III	Pupils Receive Help From Classroom Teacher Outside Regular Classes (PH:CTOC)	694	26.3
IV	Pupils Receive Help from Adjustment Teacher in School System (PH:AT)	208	7.9
V	Pupils Receive Help from Reading Specialist Occasionally (PH:RSO)	44	1.7
VI	Pupils Receive Help from Reading Specialist Regularly (PH:RSR)	181	6.9

TABLE 4.26--Continued

Graph Number	Amount of Individual Help	Number of Teachers	Percent of Teachers Responding
VII	Pupils Receive Help from Other Sources (PH:O) . .	88	3.4
	Number of unanswered questions	50	1.8
	Number of answered questions	2642	98.2

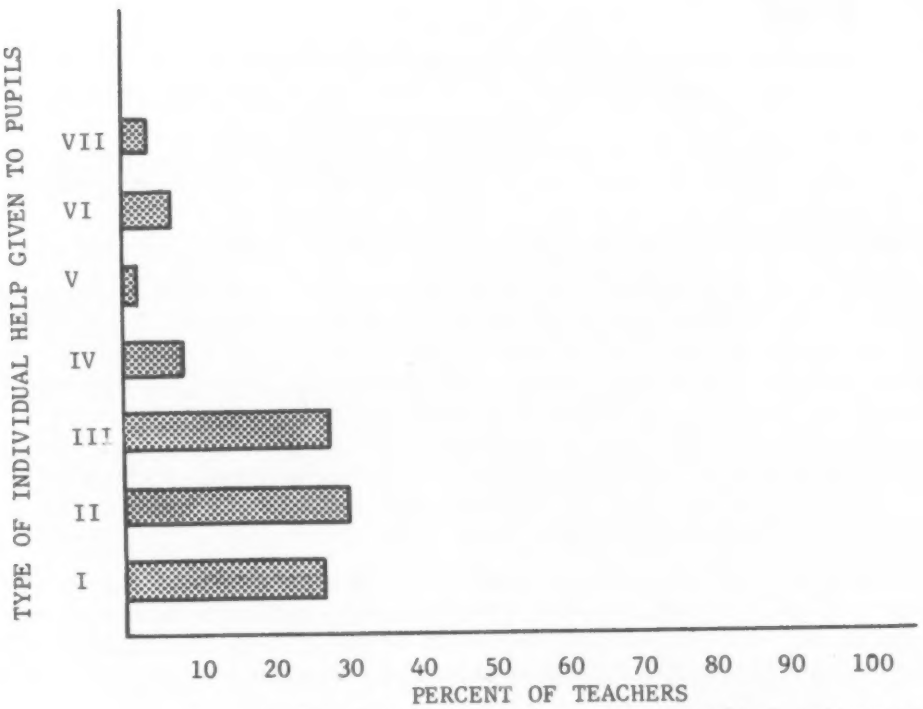

FIG. 4.26 Teachers indicating specified amounts and source of individual help in reading outside of regular class time.

TABLE 4.27

TEACHERS INDICATING MEANS USED TO DETERMINE WHEN EXTRA HELP IN READING IS NEEDED BY CHILD

Graph Number	Method of Determination	Number of Teachers	Percent of Teachers Responding
I	Teacher-Made Tests Determine When Help is Needed (TMTDHN)	60	3.1
II	Standardized Reading Tests Determine When Help is Needed (SRTDHN)	71	3.6
III	Teacher Observation Determines When Help is Needed (TODHN)	1194	60.3

TABLE 4.27—Continued

Graph Number	Method of Determination	Number of Teachers	Percent of Teachers Responding
IV	Teacher Observation and Testing Determine When Help is Needed (TOTDHN)	626	31.6
V	Other Specified Methods Determine When Help is Needed (OMDHN)	31	1.6
	Number of unanswered questions	710	26.3
	Number of answered questions	1982	73.7

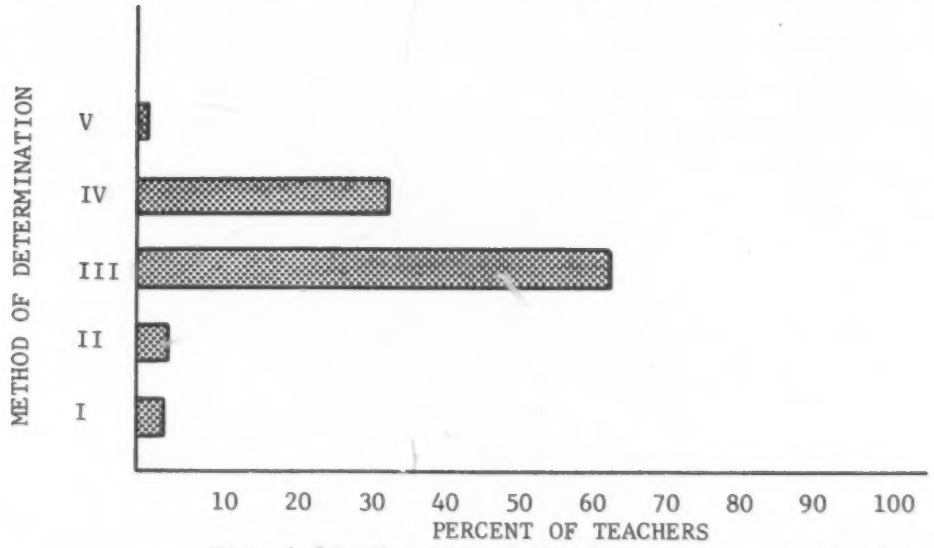

FIG. 4.27 Teachers indicating means used to determine when extra help is needed by child in reading.

Note—This question was answered only if extra help given.

Tables 4.26 and 4.27 provide information concerning the availability of individual assistance for pupils in reading *outside* regular class periods. Table 4.26 indicates that 762 (28.9 percent) of the respondents gave very little extra help. That help was given regularly during recess, before or after school or in free periods by the classroom teacher was reported by 694 (26.3 percent) of the respondents. That *no* extra help was available for pupils was reported by 665 (25.2 percent) respondents. Respondents who claimed that help was given regularly by an adjustment teacher or another qualified person in the school system totalled 208 (7.9 percent). Respondents who stated that a reading specialist was available for regular assistance totalled 181 (6.9 percent). Other respondents (21) stated that parental aid was a method of giving individual help for pupils outside regular class periods.

Table 4.27 indicates the method of determining when help was needed. Of the 1,982 (73.7 percent) respondents who indicated that aid was available, 1,194 (60.3 percent) stated that teacher observation was the method of determination; 626 (31.6 percent) of the respondents indicated

that the method was teacher observation together with testing; 71 (3.6 percent) reported relying upon standardized reading tests and 60 (3.1 percent) reported relying upon teacher-made tests.

TABLE 4.28

TEACHERS INDICATING AVAILABILITY OF CENTRAL LIBRARY IN SCHOOL

Graph Number	Schools Having or Not Having Library	Number of Teachers	Percent of Teachers Responding
I	Have Central Library	1074	40.7
II	Have Not Central Library	1566	59.4
	Number of unanswered questions	52	1.9
	Number of answered questions	2640	98.1

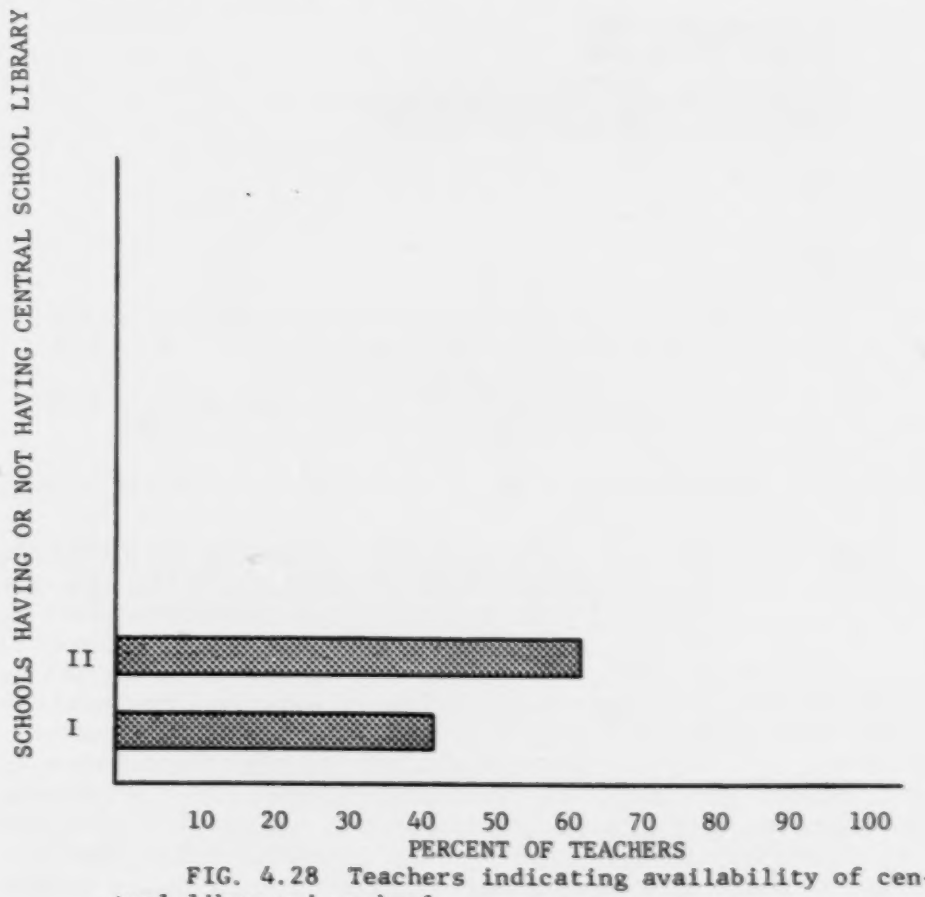

FIG. 4.28 Teachers indicating availability of central library in school.

Items 28-36 deal with libraries. Table 4.28 indicates that 1,566 (59.4 percent) of the respondents stated that they did not have a central school library as compared to 1,074 (40.7 percent) of the respondents who stated that they did.

TABLE 4.29

TEACHERS REPORTING DATE SCHOOL LIBRARY ESTABLISHED

Graph Number	Date	Number of Teachers	Percent of Teachers Responding
I	Before 1955	134	13.4
II	1955-1960	85	8.5
III	1960-1962	39	3.9
IV	1962-1965	89	8.9
V	1965-1968	660	65.6
	Number of unanswered questions	1685	62.5
	Number of answered questions	1007	37.5

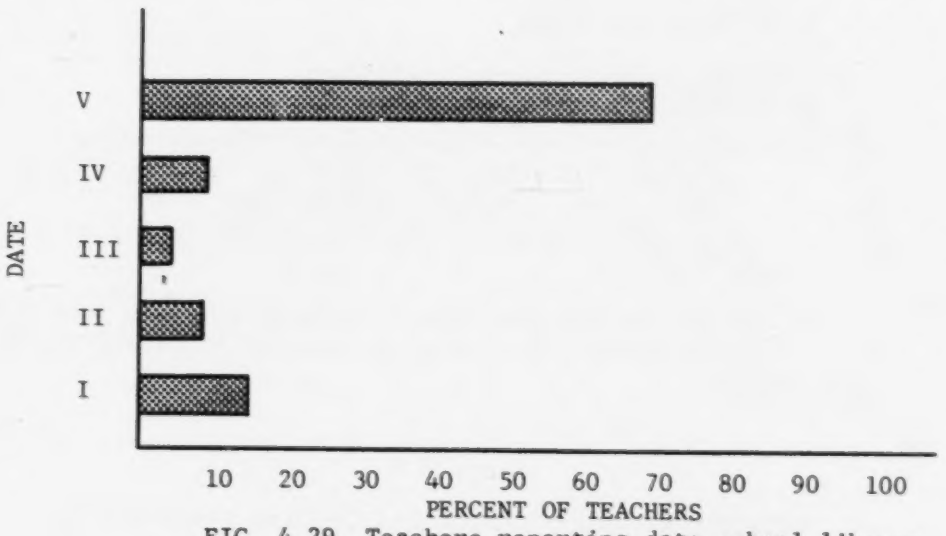

FIG. 4.29 Teachers reporting date school library established.

Note—This question was answered only if the school had a central library.

Table 4.29 indicates the dates of establishment of the central libraries in existence as reported by 1,007 (37.5 percent) of the respondents. The table shows that 660 (65.6 percent) reported the establishment of libraries between 1965 and 1968; 134 (13.4 percent) reported libraries established before 1955. Other frequencies fell between the years 1955-1965.

TABLE 4.30

TEACHERS REPORTING ACCESS OF SCHOOL TO PUBLIC LIBRARY

Graph Number	Access or No Access	Number of Teachers	Percent of Teachers Responding
I	Access	1639	64.0

TABLE 4.30—Continued

Graph Number	Access or No Access	Number of Teachers	Percent of Teachers Responding
II	No Access	922	36.1
	Number of unanswered questions	131	4.8
	Number of answered questions	2561	95.2

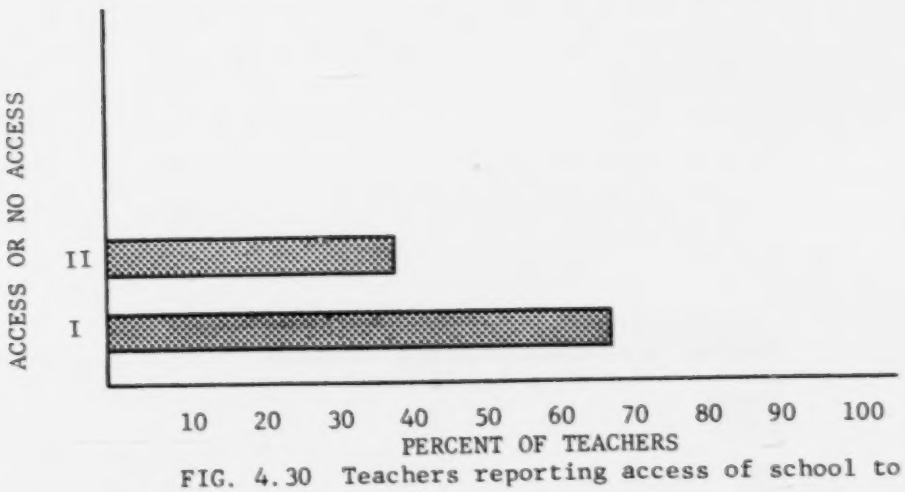

FIG. 4.30 Teachers reporting access of school to public library.

Table 4.30 indicates responses relevant to the accessibility to libraries. It shows 1,639 (64 percent) positive responses and 992 (36.1 percent) negative responses.

TABLE 4.31

TEACHERS REPORTING A SCHOOL LIBRARY OF A SPECIFIED NUMBER OF HOLDINGS

Graph Number	Number of Books	Number of Teachers	Percent of Teachers Responding
I	100 or less books	23	2.4
II	201-500 books	124	12.7
III	501-1000 books	146	14.9
IV	1001-2000 books	218	22.2
V	2001-4000 books	280	28.5
VI	4001-5000 books	64	6.6
VII	5001-6000 books	55	5.6
VIII	6001 books or more	74	7.6
	Number of unanswered questions	1708	36.6
	Number of answered questions	984	63.4

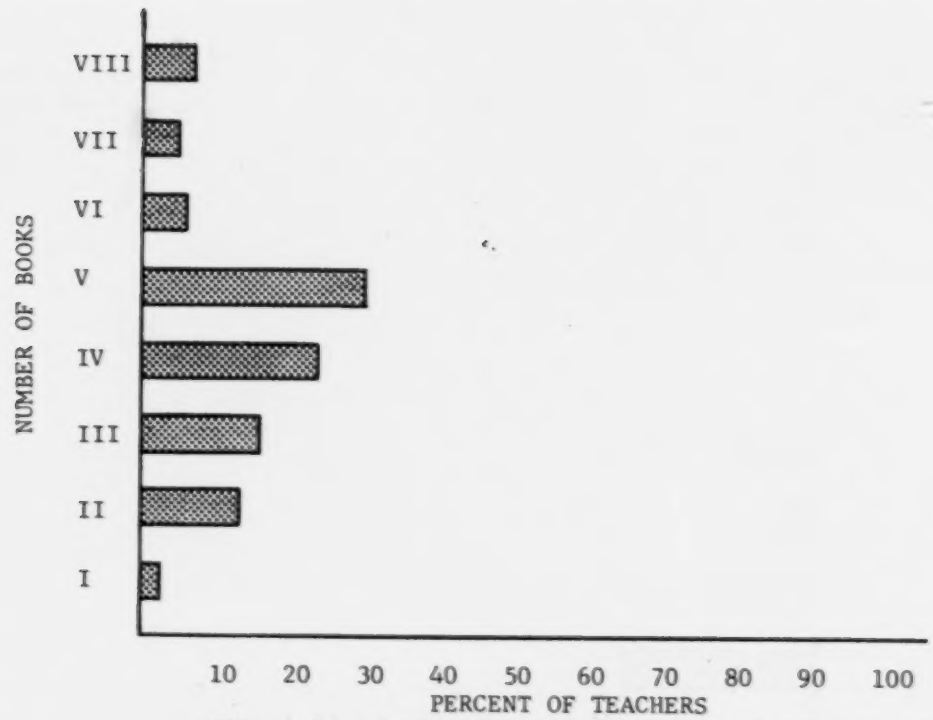

FIG. 4.31 Teachers reporting a school library of a specified number of holdings.

Note—This question was answered only if the school had a central library.

Table 4.31 indicates the numbers of books in the central school libraries. Libraries which contained between 2,001 and 4,000 books were reported by 280 (28.5 percent) respondents; libraries which contained between 1,001 and 2,000 were reported by 218 (22.2 percent); and libraries which contained more than 6,000 books were reported by 74 (7.6 percent) of the respondents. Twenty-three (2.4 percent) reported school libraries containing 100 books or less.

TABLE 4.32

TEACHERS REPORTING SPECIFIED RATIO OF BOOKS PER PUPIL AVAILABLE IN SCHOOL LIBRARY

Graph Number	Books Per Pupil	Number of Teachers	Percent of Teachers Responding
I	1 to 5 books	514	50.4
II	6 to 10 books	242	23.8
III	11 to 15 books	120	11.8

TABLE 4.32—Continued

Graph Number	Books Per Pupil	Number of Teachers	Percent of Teachers Responding
IV	16 to 20 books	42	4.2
V	More than 20 books	102	10.0
	Number of unanswered questions	1672	62.1
	Number of answered questions	1020	37.9

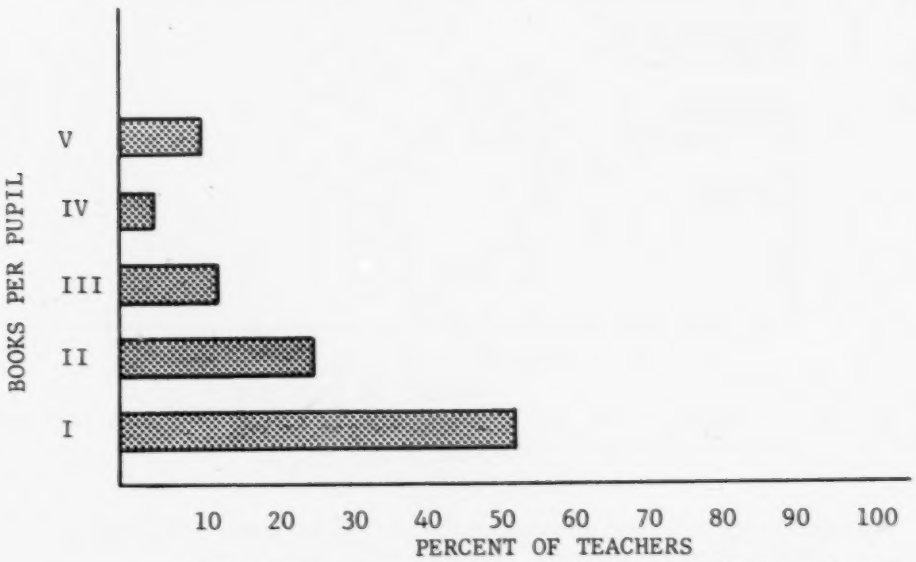

FIG. 4.32 Teachers reporting specified ratio of books per pupil available in school library.

Table 4.32 indicates the number of books per pupil available in the school library. The majority of the respondents, 514 (50.4 percent), indicated that there were only one to five books available per pupil. Libraries with more than 20 books per pupil available were reported by only 102 (10 percent) of the respondents.

TABLE 4.33

TEACHERS REPORTING PRESENCE OF A CLASSROOM LIBRARY

Graph Number	Classroom Library	Number of Teachers	Percent of Teachers Responding
I	Classroom Library (CL)	2083	78.5
II	No Classroom Library (NCL)	307	11.6
III	Combination of Central and Classroom Library CCL)	266	10.1
	Number of unanswered questions	36	1.3
	Number of answered questions	2656	98.7

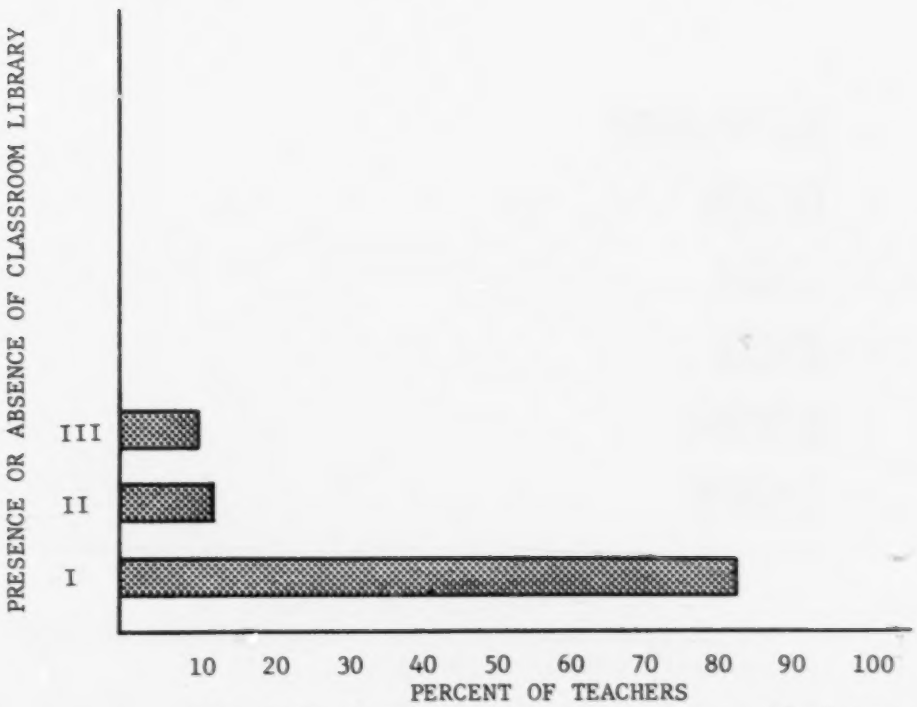

FIG. 4.33 Teachers reporting presence of classroom libraries.

Table 4.33 shows teachers indicating whether or not they had a classroom library. The majority of the respondents, 2,083 (78.5 percent), reported that they had classroom libraries in comparison to 307 (11.6 percent) who reported no classroom libraries. Of the respondents, 266 (10.1 percent) stated that they had a combination of central and classroom libraries.

TABLE 4.34

TEACHERS REPORTING A CLASSROOM LIBRARY OF A SPECIFIED NUMBER OF HOLDINGS

Graph Number	Number of Books	Number of Teachers	Percent of Teachers Responding
I	50 or less	365	16.1
II	51 to 100	371	16.4
III	101 to 120	296	13.1
IV	121 to 160	308	13.6
V	161 to 200	328	14.5
VI	200 or more	608	26.8
	Number of unanswered questions	416	15.4
	Number of answered questions	2276	84.6

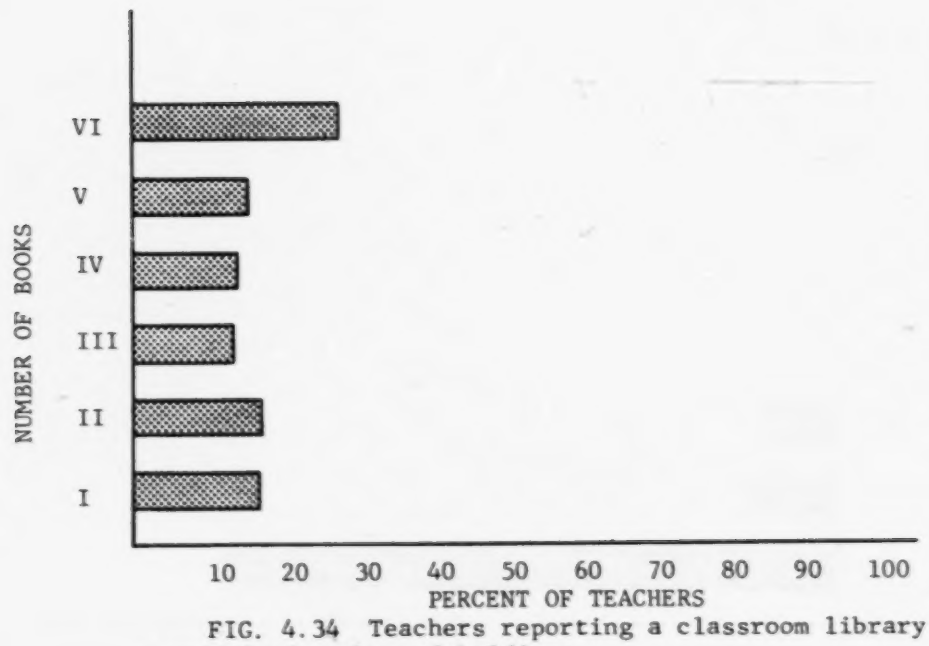

FIG. 4.34 Teachers reporting a classroom library of a specified number of holdings.

Note—This question was answered only if the classroom did have a class library.

Table 4.34 indicates the number of books in classroom libraries. As reported by respondents, the greatest number of classrooms—608 (26.8 percent)—had 200 books or more, followed by 371 (16.4 percent) who reported between 51-100 books, and 365 (16.1 percent) who reported 50 books or less.

TABLE 4.35

TEACHERS INDICATING TYPICAL USES OF A CLASSROOM LIBRARY

Graph Number	Use	Number of Teachers	Percent of Teachers Responding
I	Reference (CL:R)	62	2.7
II	Classroom Library Used for Library Skills (CL:LS)	20	0.9
III	Classroom Library Used for Recreational Reading (CL:RR)	927	40.1
IV	Classroom Library Used for Research (CL:R)	25	1.1
V	Classroom Library Used for Combination of Purposes (CL:CP)	1280	55.4
	Number of unanswered questions	378	14.0
	Number of answered questions	2314	86.0

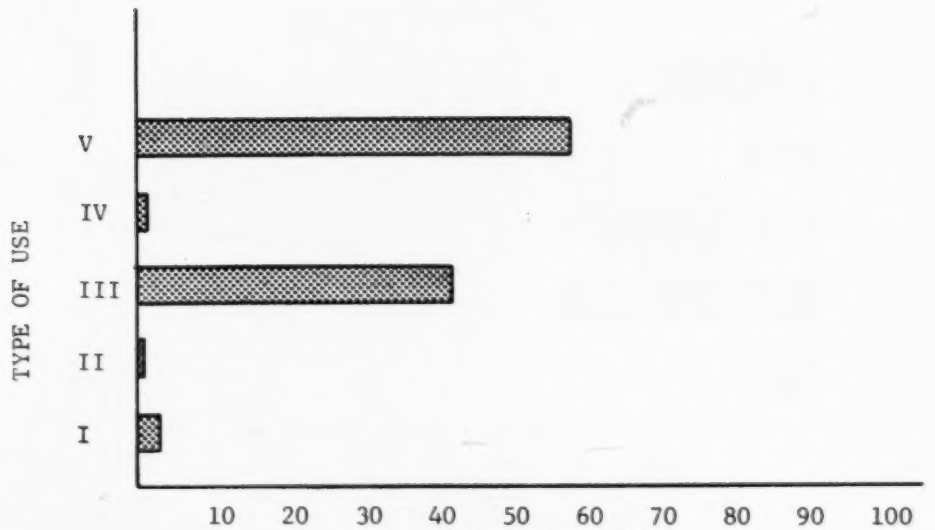

FIG. 4.35 Teachers indicating typical uses of a classroom library.

Note—This question answered if have class library.

Table 4.35 indicates the type of use of classroom libraries. Of the respondents, 1,280 (55.4 percent) reported using the library for a combination of reference, library skills, recreational reading and research. Few respondents—62, 20 (2.7 and 0.9 percent) and 25 (1.1 percent)—reported their library was used solely for reference, library skills or research respectively. Indicating the use of the library for recreational reading were 927 (40.1 percent) respondents.

TABLE 4.36

TEACHERS INDICATING STAFFING ARRANGEMENTS OF CENTRAL SCHOOL LIBRARY

Graph Number	Staff	Number of Teachers	Percent of Teachers Responding
I	Central Library Staffed with Full-time Librarian (LS:FTL)	106	10.3
II	Central Library Staffed with Part-time Librarian (LS:PTL)	328	31.8
III	Central Library Staffed with Classroom Teachers (LS:CT)	297	28.8
IV	Central Library Staffed with Students (LS:S)	100	9.7
V	Central Library Staffed Otherwise (LS:O)	201	19.5
	Number of unanswered questions	1660	61.6
	Number of answered questions	1032	38.4

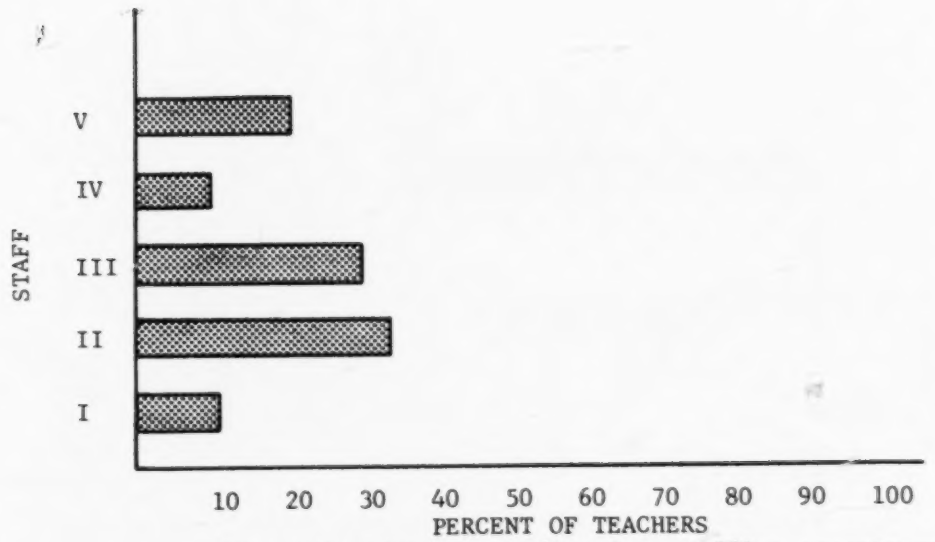

FIG. 4.36 Teachers indicating staffing arrangement of central school libraries.

Note—This question was answered only if the school had a central library.

Table 4.36 presents information relevant to central library staffing. The table shows that of the 1,032 (38.4 percent) teachers who answered this item, 328 (31.8 percent) indicated that a part-time librarian was responsible for operating the library, followed by 297 (28.8 percent) who indicated libraries staffed by classroom teachers. Schools having full-time librarians were reported by 106 (10.3 percent) of the respondents. One hundred (9.7 percent) teachers reported libraries staffed by pupils. Other library staff (*i.e.* teachers and pupils, parents, volunteers, principals or vice-principals) were reported by 201 (19.5 percent) respondents. Thirty-five (3.4 percent) teachers reported no supervision in their school libraries.

TABLE 4.37

TEACHERS INDICATING CLASSES OF SPECIFIC SIZE

Graph Number	Size of Class (No. of Students)	Number of Teachers	Percent of Teachers Responding
I	Less than 20 pupils	330	12.4
II	Between 20 to 25 pupils	767	28.8
III	Between 26 to 30 pupils	997	37.3
IV	Between 31 to 35 pupils	496	18.6
V	Between 36 to 40 pupils	67	2.6
VI	Between 41 to 45 pupils	2	0.1
VII	Between 46 to 50 pupils	3	0.2

TABLE 4.37—Continued

Graph Number	Size of Class (No. of Students)	Number of Teachers	Percent of Teachers Responding
VIII	More than 50 pupils	13	0.5
	Number of questions unanswered	15	0.5
	Number of questions answered	2675	99.5

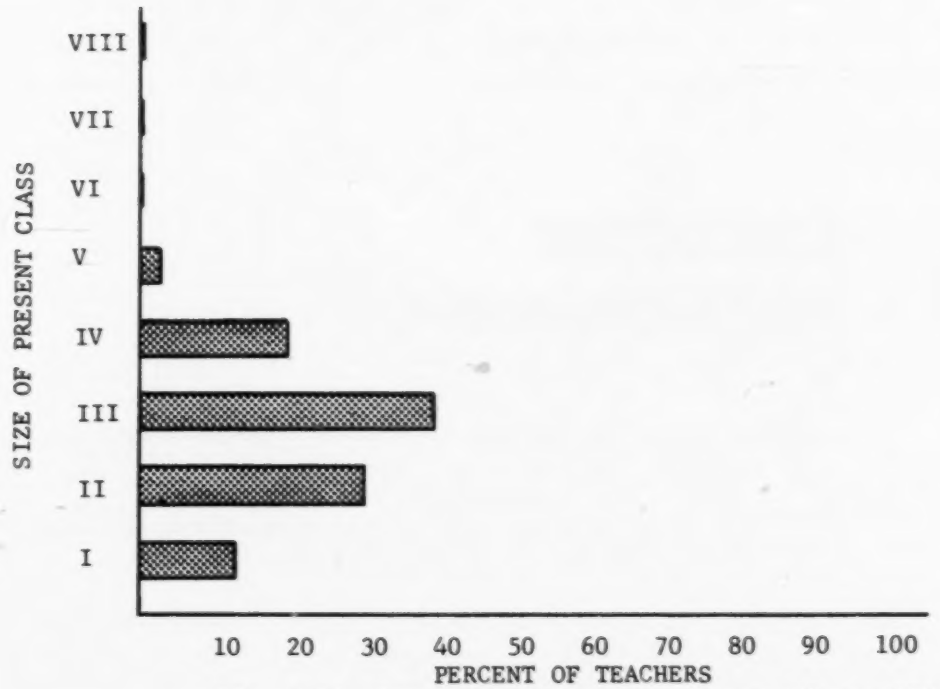

FIG. 4.37 Teachers indicating classes of specific size.

Table 4.37 indicates the relative sizes of the classes of the teachers questioned. Nine hundred and ninety-seven (37.3 percent) of the respondents stated that their classrooms contained between 26-30 pupils, followed by 767 (28.8 percent) respondents who reported 20-25 pupils. Four hundred and ninety-six (18.6 percent)respondents reported between 31-35 pupils. Classes of less than 20 pupils were reported by 330 (12.4 percent) respondents. Eighty-five (3.4 percent) of the respondents reported classes of more than 36 pupils.

TABLE 4.38

TEACHERS ESTIMATING EDUCATIONAL-CULTURAL LEVEL OF AVERAGE FAMILY IN SCHOOL COMMUNITY

Graph Number	Background (Academic)	Number of Teachers	Percent of Teachers Responding
I	Average Community Family Attended University (AF:AU)	98	3.8

TABLE 4.38—Continued

Graph Number	Background (Academic)	Number of Teachers	Percent of Teachers Responding
II	Average Community Family Attended High School (AF:AH)	1472	57.0
III	Average Community Family Attended Elementary School (AF:AE)	1015	39.3
	Number of unanswered questions	107	3.9
	Number of answered questions	2585	96.1

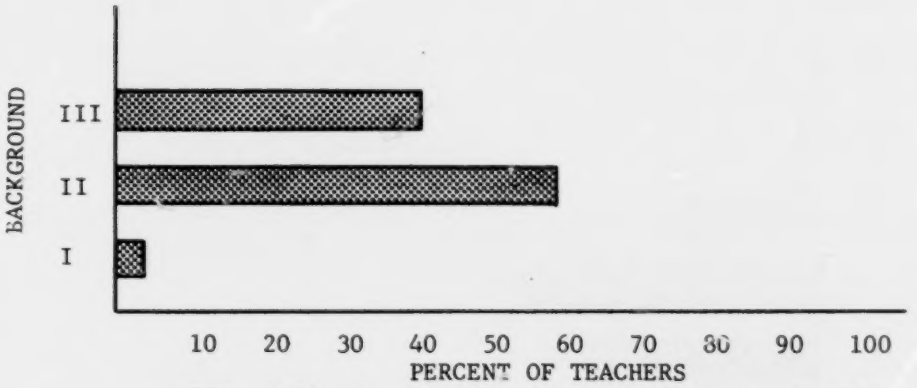

FIG. 4.38 Teachers estimating educational-cultural level of average family in school community.

Table 4.38 shows the average educational-cultural background of their school community. The majority of respondents, 1,472 (57 percent), indicated high school backgrounds; and 98 (3.8 percent) indicated university backgrounds.

TABLE 4.39

TEACHERS REPORTING LANGUAGE BACKGROUND OF CLASS

Graph Number	Language Background	Number of Teachers	Percent of Teachers Responding
I	Children Speak Language Other Than English at Home (CSLOTE)	595	22.9
II	Children Hear But Do Not Speak Other Language at Home (CHNSOL)	743	28.6
III	Children Neither Hear, Nor Speak a Language Other Than English (CNHSOL)	1263	48.6
	Number of unanswered questions	91	3.3
	Number of answered questions	2601	96.7

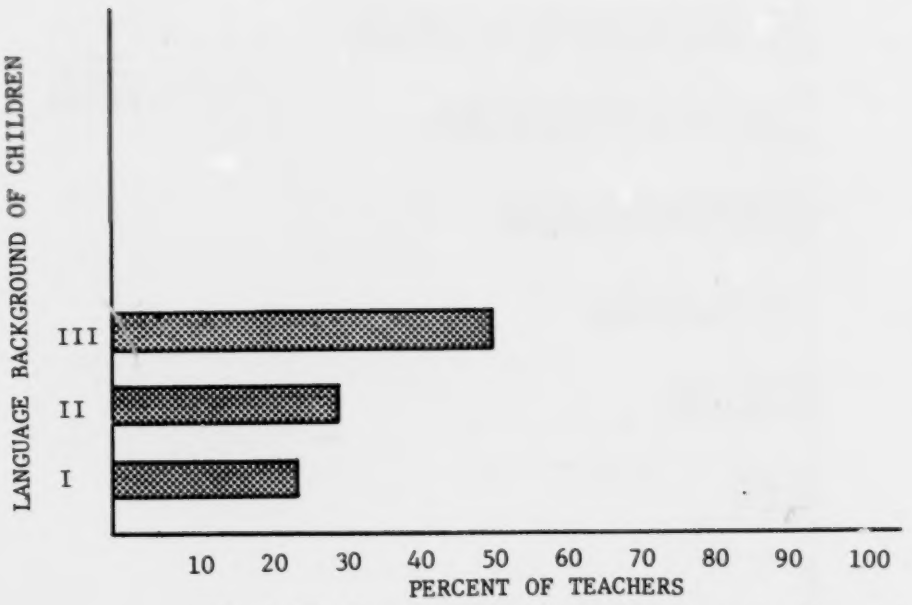

FIG. 4.39 Teachers reporting language background of children.

TABLE 4.40

TEACHERS ESTIMATING SPECIFIED PERCENTAGES OF CLASS ROOM PUPILS SPEAKING A SECOND LANGUAGE AT HOME

Graph Number	Percent of Students	Number of Teachers	Percent of Teachers Responding
I	No Other Language at Home.....	383	14.7
II	Less Than 10 Percent of Students.....	1201	46.0
III	10 Percent to 20 Percent of the Students.....	293	11.3
IV	20 Percent to 30 Percent of the Students.....	188	7.2
V	30 Percent to 40 Percent of the Students.....	103	4.0
VI	40 Percent to 50 Percent of the Students.....	85	3.3
VII	50 Percent to 60 Percent of the Students.....	67	2.6
VIII	60 Percent of the Students and More.....	295	11.3
	Number of unanswered questions.....	77	2.8
	Number of answered questions.....	2615	97.2

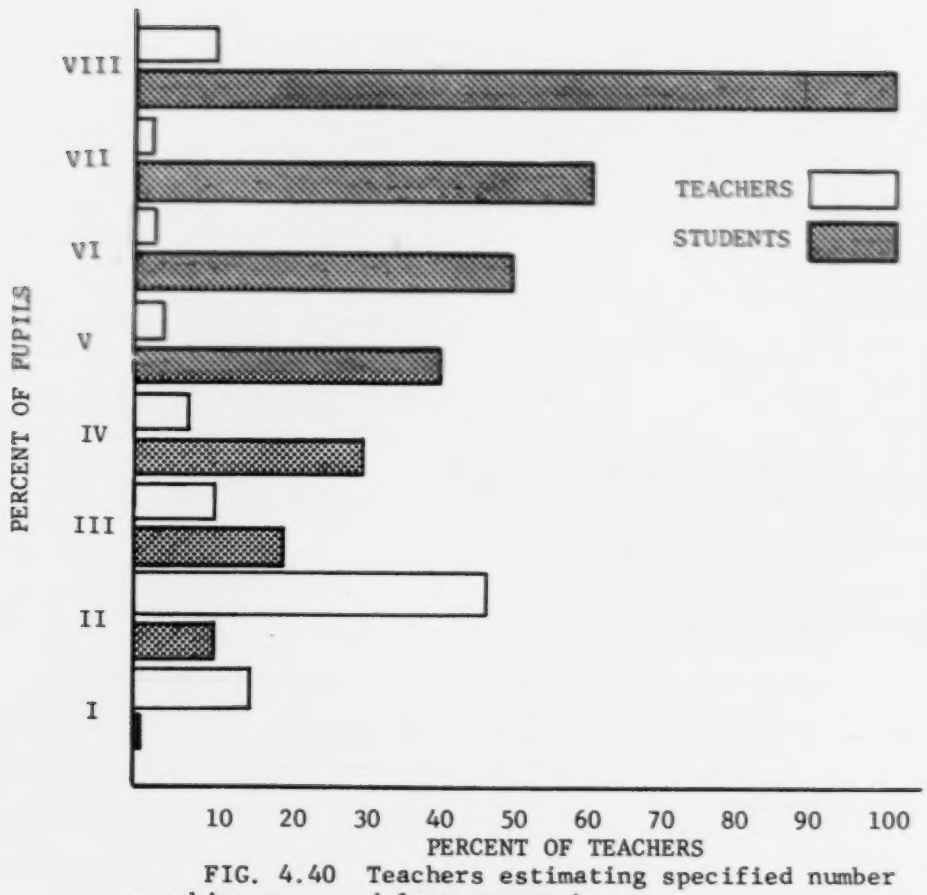

FIG. 4.40 Teachers estimating specified number speaking a second language at home.

Tables 4.39 and 4.40 deal with the language backgrounds of the pupils. Table 4.39 indicates that 1,263 (48.6 percent) of the respondents stated that their pupils neither heard nor spoke a language other than English; and that 743 (28.6 percent) respondents indicated that their pupils heard but did not speak another language. Homes in which pupils spoke a language other than English were reported by 595 (22.9 percent) respondents. Table 4.40 indicates the *percentage* of classroom pupils speaking a second language at home. One thousand two hundred and one (46 percent) respondents stated that less than 10 percent of the pupils of their classes spoke a second language; 383 (14.7 percent) respondents reported that no pupils of their classes spoke a language other than English; 295 (11.3 percent) respondents reported 60 percent and more of the pupils of their classes spoke a second language; and 293 (11.3 percent) respondents reported that between 10-20 percent of their pupils spoke another language.

STANDARDIZED INSTRUMENTS

Mental Ability Test Scores

Tables 4.41, 4.42, 4.43 and 4.44 indicate the average Otis-Lennon Mental Ability Test (IQ) scores of pupils of grades one, two, three and six and the average IQ scores of pupils of these grades classified according to U/R divisions. All percentile ranks of IQ were calculated from the actual frequency distributions.

TABLE 4.41

PERCENTILE RANKS OF GRADE ONE INTELLIGENCE SCORES

Percentile	Intelligence Scores Rural	Urban	Overall	Percentile	Intelligence Scores Rural	Urban	Overall
99	150	150	150	61	104		
98	134	136	135	60		108	106
97	130	131	131	59	103		105
96	127	129	128	58			
95	125	127	126	57	102	107	
94	123	126	124	56			104
93	122	124	123	55			
92	120	123	122	54	101	106	
91	119	122	121	53			103
90	118	121	120	52	100	105	
89		120	119	51			102
88	117			50			
87	116	119	118	49		104	
86			117	48	99		101
85	115	118		47			
84			116	46	98	103	
83	114	117		45			100
82	113		115	44			
81		116		43	97	102	
80	112		114	42			99
79			113	41	96		
78	111	115		40		101	98
77			112	39			
76		114		38			
75	110	113		37	95	100	97
74			111	36			
73				35	94		96
72	109	112		34		99	
71			110	33			
70	108			32	93	98	
69		111		31			95
68	107		109	30			94
67				29	92	97	
66		110		28	91	96	
65	106		108	27			93
64	105			26	90		
63		109	107	25			
62				24		95	92

TABLE 4.41—Continued

Percentile	Intelligence Scores Rural	Urban	Overall	Percentile	Intelligence Scores Rural	Urban	Overall
23	89	94	91	11	82		84
22	88			10	81	87	83
21			90	9	80	86	82
20	87	93		8	79	85	81
19			89	7	78	84	80
18		92	88	6	77	83	79
17	86	91		5	76	82	78
16	85		87	4	74	81	77
15		90		3	73	79	75
14	84		86	2	70	77	73
13	83	89	85	1	68	74	70
12		88					

In grade one the 50th percentile rank score for IQ was 102. The urban 50th percentile rank score was 105 and the rural 100.

TABLE 4.42

PERCENTILE RANKS OF GRADE TWO INTELLIGENCE SCORES

Percentile	Intelligence Scores Rural	Urban	Overall	Percentile	Intelligence Scores Rural	Urban	Overall
99	150	150	150	73			
98	132	138	135	72	108	112	110
97	128	134	131	71			
96	126	132	129	70	107	111	
95	125	130	127	69			109
94	123	128	126	68			108
93	122	126	124	67	106	110	
92	121	125	123	66			
91	119	124	122	65	105	109	107
90	118	123	121	64			
89		122	120	63	104	108	106
88	117	121	119	62			
87	116	120	118	61			
86		119	117	60	103	107	105
85	115			59			
84	114	118	116	58		106	104
83				57	102		
82	113	117	115	56			
81	112		114	55		105	103
80		116		54	101		
79	111		113	53			
78		115		52		104	102
77	110	114	112	51	100		
76				50			
75		113	111	49		103	101
74	109			48			

TABLE 4.42—Continued

Percentile	Intelligence Scores Rural	Urban	Overall	Percentile	Intelligence Scores Rural	Urban	Overall
47	99	102	100	23		92	90
46				22	88		
45	98			21		91	
44		101	99	20			89
43	97			19	87	90	
42				18	86		88
41		100	98	17			
40	96			16	85	89	87
39		99	97	15	84		86
38				14	83	88	
37	95			13		87	85
36		98	96	12	82	86	84
35	94			11	81		83
34		97		10	80	85	
33	93		95	9		84	82
32		96		8	79	83	81
31			94	7	78	82	80
30	92			6	77	81	79
29	91	95	93	5	76	80	78
28				4	75	79	77
27		94	92	3	74	78	76
26	90			2	72	76	74
25			91	1	69	74	71
24	89	93					

In grade two the 50th percentile rank score for IQ was 102. The urban 50th percentile rank score was 104 and the rural 100.

TABLE 4.43

PERCENTILE RANKS OF GRADE THREE INTELLIGENCE SCORES

Percentile	Intelligence Scores Rural	Urban	Overall	Percentile	Intelligence Scores Rural	Urban	Overall
99	150	144	150	85	114	118	116
98	130	132	132	84	113		
97	127	129	128	83	112	117	115
96	125	127	126	82		116	
95	122	126	125	81			114
94	121	124	123	80	111		
93	120	123	122	79		115	113
92	119	122	121	78			
91	118		120	77	110	114	112
90	117	121	119	76		113	
89	116	120		75	109		111
88			118	74		112	
87	115	119		73			
86			117	72	108	111	110

TABLE 4.43—Continued

Percentile	Intelligence Scores Rural	Urban	Overall	Percentile	Intelligence Scores Rural	Urban	Overall
71				35			
70	107			34		98	
69		110	109	33	94		96
68	106			32			
67				31	93	97	
66		109	108	30			95
65	105			29			
64			107	28	92	96	94
63	104	108		27			
62			106	26	91		93
61	103			25		95	
60		107		24	90		
59			105	23		94	92
58	102	106		22	89		
57			104	21		93	91
56				20			
55	101	105		19	88	92	90
54			103	18			
53				17	87	91	89
52		104		16			
51	100		102	15	86		88
50				14		90	
49		103		13	85	89	87
48	99		101	12			86
47				11	84	88	
46				10	83		85
45	98	102	100	9		87	
44				8	82	86	84
43				7	81	85	83
42	97	101	99	6	80	84	82
41				5	79	83	81
40				4	78	82	80
39	96	100	98	3	76	81	78
38				2	74	80	76
37				1	71	78	73
36	95	99	97				

In grade three the 50th percentile rank score for IQ was 102. The urban 50th percentile rank score was 104 and the rural 100.

TABLE 4.44

PERCENTILE RANKS OF GRADE SIX INTELLIGENCE SCORES

Percentile	Intelligence Scores Rural	Urban	Overall	Percentile	Intelligence Scores Rural	Urban	Overall
99	144	150	150	96	125	130	127
98	132	135	134	95	124	127	125
97	128	132	130	94	123	125	124

TABLE 4.44—Continued

Percentile	Intelligence Scores Rural	Urban	Overall
93	121	124	
92		123	122
91	119	121	121
90			
89	118		120
88	117		
87		120	
86			118
85	116		117
84	115	118	
83		117	116
82			
81	114		115
80	113	116	
79			
78	112	115	114
77			113
76			
75	111	114	
74			112
73	110	113	
72			111
71		112	
70	109		
69			110
68		111	
67			
66	108		
65			109
64		110	
63	107		
62			108
61		109	
60	106		
59			107
58			
57	105	108	
56			106
55			
54	104	107	
53			
52			105
51	103		
50		106	
49	102		104
48			
47			
46			105
45	101		
44			
43	100	104	102
42			
41			
40		103	101
39	99		
38			
37		102	100
36			
35	98	101	
34			99
33			
32	97	100	
31			98
30	96		
29		99	
28			
27	95		97
26			
25		98	96
24	94		
23			95
22		97	
21	93		
20		96	94
19	92		
18		95	93
17	91		
16	90	94	92
15			
14			91
13	89	93	
12	88		90
11	87	92	
10		91	89
9	86	90	88
8			87
7	85	89	
6	84	88	86
5	83	87	85
4	82	86	84
3	81	85	83
2	79	83	81
1	77	81	79

In grade six the 50th percentile rank for IQ was 104. The urban 50th percentile rank was 106 and the rural 101.

Limitations

One of the limitations of the present study was that the Stanford Reading Achievement Tests (SRAT) administered to the Manitoba pupils measured the pupils' performance against norms which were established in the United States. The tests were designed to measure pupils' achievement levels in different skills, and the norms were established by the test makers as estimates of the levels of achievement they found in standardizing the test across the United States. The actual score a pupil achieves on a standardized achievement test does not indicate precisely the pupil's level of achievement. Standardized tests which have norm-referenced scores do not tell how the pupil should perform in reading, but do tell how pupils of a particular school class rank in comparison with the pupils in the standardized group.

Rationale for Using Percentile Ranks

The Commission decided to use percentile ranks in presenting the scores of the testing phase because percentile ranks are easy to interpret. Most pupils and teachers are better acquainted with the concept of percentages than with stanines or other scores.

The percentile rank is a way of describing the pupil's performance in relation to the scores made by others in his group. However, it is difficult to draw a *growth curve* from percentile ranks (if this is ever attempted) and percentile ranks reveal nothing about the number of items answered correctly. In recent years the *percentile band* had been used in an effort to help overcome the limitations mentioned above. The advantage of percentile bands over percentile ranks is that the former make the interpreter fully conscious that a score is not as precise as it is often thought to be. (Lyman, 1970, p. 4).

Stanford Reading Achievement Test Scores

Scores for Paragraph Meaning in Grades One, Two, Three and Six

TABLE 4.45

PERCENTILE RANKS OF GRADE ONE GRADE SCORES

Percentile	Grade Scores							
	Word Reading			Paragraph Meaning			Word Study Skills	Vocabulary
	Overall	Rural	Urban	Overall	Rural	Urban		
99	36	36	36	36	36	36	55	44
98	32	32	32	31	31	31	55	36
97	29	29	29	29	29	29	55	33
96				27	27		48	31
95	27	27	27			27		
94	26	26		26	26	26	39	29
93			26	25	25			

TABLE 4.45—Continued

PERCENTILE RANKS
OF GRADE ONE GRADE SCORES—Continued

Percentile	Grade Scores							
	Word Reading			Paragraph Meaning			Word Study Skills	Vocabulary
	Overall	Rural	Urban	Overall	Rural	Urban		
92		25				25	34	27
91	25			24	24			
90		24	25			24		
89	24			23	23		32	26
88						23		
87		23	24	22	22		30	
86	23					22		25
85				21	21			
84		22	23			21	28	
83	22			20	20			
82			22			20		24
81		21		20			27	
80	21							
79			21		19			
78		20		19			26	23
77	20					19		
76			20	19				
75		19						
74					18		25	22
73	19			18				
72			19					
71		19		18		18	24	
70								
69	19							21
68			19	18			23	
67		18						
66					17			
65	18			17				20
64						17	22	
63			18					
62		18		17				
61							21	
60	18							19
59				17				
58		17	18					
57							20	
56				17				
55	17							18
54							20	
53		17	17					
52				16	16			

TABLE 4.45—Continued

PERCENTILE RANKS OF GRADE ONE GRADE SCORES—Continued

Percentile	Grade Scores							
	Word Reading			Paragraph Meaning			Word Study Skills	Vocabulary
	Overall	Rural	Urban	Overall	Rural	Urban		
51						16	19	
50	17							
49								17
48		17	17	16			19	
47								
46								
45	17							
44							18	16
43		16		16				
42			17					
41							18	
40								
39	16			16				15
38								
37		16					17	
36			16		15			
35				15				
34							16	
33	16					15		15
32		15						
31							16	
30			16	15				
29								
28	15						15	14
27		15						
26							15	
25			15	15				
24								
23	15						15	
22		14			14			14
21							14	
20			15	14				
19	14					14	14	
18		14						
17								
16			14	14			14	13
15	14							
14		13					13	
13								
12	13		14		13		13	13
11		13		13		13		

TABLE 4.45—Continued

PERCENTILE RANKS OF GRADE ONE GRADE SCORES—Continued

Percentile	Grade Scores							
	Word Reading			Paragraph Meaning			Word Study Skills	Vocabulary
	Overall	Rural	Urban	Overall	Rural	Urban		
10			13				13	
9	13				12		12	
8		12		12				12
7			13			12	12	
6	12			12			12	
5		11	12					12
4	11			11	11	11	12	
3	11	11	11				11	11
2	10	10	11	11	10	10	11	
1	10	10	10	10	10	10	10	11

TABLE 4.46

PERCENTILE RANKS OF GRADE TWO GRADE SCORES

Percentile	Grade Scores						
	Word Meaning			Paragraph Meaning			Home Study Skills
	Overall	Rural	Urban	Overall	Rural	Urban	
99	51	47	54	53	53	53	74
98	47	44	51	44	41	50	70
97	44	42	47	41	39	44	67
96	42		44	39		41	
95		40		37	37	39	65
94	40	38	42		36		
93				36	34	37	63
92	38		40	34	33	36	
91		37					60
90			38	33	32	34	58
89	37				32		
88		36		32		33	
87			37	32			56
86	36				31	32	
85		35					54
84				31	31		

TABLE 4.46—Continued

PERCENTILE RANKS
OF GRADE TWO GRADE SCORES—Continued

Percentile	Grade Scores						
	Word Meaning			Paragraph Meaning			Home Study Skills
	Overall	Rural	Urban	Overall	Rural	Urban	
83					30	32	52
82	35		36	31			
81		33				31	
80				30	30		50
79						31	
78	33			30	29		48
77			35			30	
76		31					47
75				29			
74						30	45
73					29		
72	31		33			29	42
71		30					
70				29			
69							40
68							
67			31		28		39
66	30					29	
65		29					
64				28			37
63							
62					27		36
61			30			28	
60	29						35
59				27			
58		28					34
57							
56					27		33
55			29			27	
54	28						
53				27	26		32
52		27					
51							31
50				26			
49			28			27	30
48	27						
47					26		29
46		27				26	
45							28
44			27	26			
43							28
42	27				25		

TABLE 4.46—Continued

PERCENTILE RANKS
OF GRADE TWO GRADE SCORES—Continued

Percentile	Grade Scores						
	Word Meaning			Paragraph Meaning			Home Study Skills
	Overall	Rural	Urban	Overall	Rural	Urban	
41		26					
40						26	27
39				25			
38			27				26
37	26				25		
36							25
35		25					
34				25		25	
33							24
32	25		26		24		
31							24
30		23					
29				24	24	25	
28	23		25				23
27							
26		21		24	23		22
25							
24			23	23	22	24	
23	21						21
22				22		24	
21		20					
20			21			23	20
19	20					22	
18					21		20
17		19		21			
16			20				
15	19					21	19
14					20		
13		18	19	20			
12	18						18
11						20	
10		18	18		20		17
9	18			20			
8			18				16
7	17	17				20	
6			17				16
5	17	17		19	19		15
4	16	16	17			19	14
3	15		16	19	19		14
2	14	15	15			19	13
1	13	14	14	18	18	18	12

TABLE 4.47

PERCENTILE RANKS OF GRADE THREE GRADE SCORES

Percentile	Grade Scores						
	Word Meaning			Paragraph Meaning			Word Study Skills
	Overall	Rural	Urban	Overall	Rural	Urban	
99	69	64	69	75		75	75
98	64	57	64	75	75	75	74
97							
96		54		75			72
95	54			69	64	75	
94			54				70
93		51		64		64	
92	51				50		
91			51				
90		47		50			67
89					44	50	
88							
87	47			44			65
86		44	47		41		
85					40	44	
84							63
83	44			41			
82		42			39	41	
81			44				
80							60
79				39			
78					37	39	
77	42						58
76		40					
75			42	37			
74					36		
73						37	56
72							
71	40						
70		38		36	34		54
69						36	
68			40				
67					33		
66				34			52
65	38					34	
64							
63		37			32		50
62			38	33			
61							
60					32	33	48
59				32			

TABLE 4.47—Continued

PERCENTILE RANKS
OF GRADE THREE GRADE SCORES—Continued

Percentile	Grade Scores						
	Word Meaning			Paragraph Meaning			Word Study Skills
	Overall	Rural	Urban	Overall	Rural	Urban	
58							
57	37					32	47
56		36			31		
55				32			
54			37				45
53						32	
52					31		
51				31			42
50	36						
49		35			30		
48						31	40
47				31			
46			36		30		39
45							
44				30		31	
43	35						37
42		33			29		
41				30			36
40						30	
39							35
38			35				
37				29	29	30	
36	33						34
35		31					
34						29	33
33							
32				29			32
31			33		28		
30	31	30					31
29							30
28							
27						29	29
26			31	28	27		
25							28
24	30	29					
23							28
22						28	
21				27	27		27
20							
19	29	28	30		26		26
18							

TABLE 4.47—Continued

PERCENTILE RANKS
OF GRADE THREE GRADE SCORES—Continued

Percentile	Grade Scores						
	Word Meaning			Paragraph Meaning			Word Study Skills
	Overall	Rural	Urban	Overall	Rural	Urban	
17				27		27	25
16		27			26		24
15	28			26			
14			29				24
13		27			25	27	23
12	27			26			
11			28			26	22
10		26			25		21
9	27			25			
8		25	27		24	26	20
7	26			25	24		20
6	25	23	27	24	23	25	
5		21		24		25	19
4	23	20	26	22	21	24	18
3	20	19	25	21	20	24	17
2	19	18	23	20	20	22	16
1	17	17	19	19	19	20	15

TABLE 4.48

PERCENTILE RANKS
OF GRADE SIX GRADE SCORES

Percentile	GRADE SCORES						Percentile	GRADE SCORES					
	Word Meaning			Paragraph Meaning				Word Meaning			Paragraph Meaning		
	Overall	Rural	Urban	Overall	Rural	Urban		Overall	Rural	Urban	Overall	Rural	Urban
99	100	100	100	92	92	92	90		80	83	80		
98	93	93	93	87	87		89	80					
97	90	90	90			88	88					78	
96	88	88	88		84		87		78	80	78		80
95		85		84			86	78				77	
94	85				82	84	85						
93			85				84		76	78			78
92		83		82			83				77	75	
91	83				80	82	82	76					

TABLE 4.48—Continued

PERCENTILE RANKS
OF GRADE SIX GRADE SCORES—Continued

Percentile	GRADE SCORES						Percentile	GRADE SCORES					
	Word Meaning			Paragraph Meaning				Word Meaning			Paragraph Meaning		
	Overall	Rural	Urban	Overall	Rural	Urban		Overall	Rural	Urban	Overall	Rural	Urban
81							40			62		59	63
80		75	76	75		77	39		57		60		
79					73		38	59					
78	75						37					57	61
77							36				59		
76		73		73	72		35			60			
75			75			76	34		56				60
74							33	57			57	56	
73	73			72	70		32						
72		71				74	31			59		54	59
71							30				56		
70			73		69		29	56	54				
69	71			70			28						57
68		69				72	27			57	54	53	
67							26		52				
66					67		25	54					56
65			71	69		70	24				53	52	
64	69	67					23			56			54
63							22		51		52	51	
62					66		21	52				50	
61				67			20			54		49	53
60	67	66	69			69	19				50		
59							18	51	49				52
58				66	65		17						
57							16			52	49	48	50
56	66						15	49	47				
55		64	67		64	67	14			51	48	47	
54				65			13						49
53							12	47	46		47	46	
52					62	66	11			49			48
51	64	62					10	46			46	44	
50			66	64			9		44	47	44	43	47
49							8			46			46
48					61	65	7	44	42		43	42	44
47		60		62			6	42	41	44	42	41	43
46	62						5		39	42	41	39	42
45			64				4	41				38	
44					60	64	3	39	38	41	39	36	41
43		59		61			2	36	36	39	36	34	39
42	60						1	35	33	36	32	30	34
41													

The total number of pupils tested in grade one was 8,312; in grade two, 8,118; in grade three, 7,958; and in grade six 6,585.

Tables 4.45, 4.46, 4.47 and 4.48 show the Stanford Reading Achievement Test (SRAT) scores in Manitoba for grades one, two, three and six respectively. The SRAT norm for Paragraph Meaning for grade one is grade 1.8 and the Manitoba mean for the same grade was 1.6*. The SRAT norm for Paragraph Meaning for grade two is grade 2.8 and the Manitoba mean for grade two was 2.6. Similarly, the SRAT norm for Paragraph Meaning for grade three is grade 3.8 and the Manitoba mean for the same grade was 3.1. In grade six the SRAT norm for Paragraph Meaning is grade 6.8 and the Manitoba mean for the same grade was 6.4. All percentile ranks for SRAT were calculated from the actual frequency distributions.

In all cases the American SRAT norms were higher. When the standard error of obtained scores was calculated and plotted around the curves of each graph as percentile bands, it was seen that the differences between the SRAT norms and the Manitoba mean scores were not large except for grade six.

Scores for Paragraph Meaning by Grade and U/R

Tables 4.45, 4.46, 4.47 and 4.48 show the Stanford Reading Achievement Test (SRAT) scores in Manitoba for grades one, two, three and six, respectively, according to U/R classification.

The sample size produced by the computer output for urban pupils tested in grade one was 2,918 and for rural pupils, 2,969. The output for grade two urban pupils was 2,788 and for rural pupils, 3,339. For grade three the output for urban pupils was 2,571 and for rural pupils, 3,206. In grade six the output for urban pupils was 2,198 and for rural pupils, 2,442.

In grade one the 50th percentile in Paragraph Meaning was grade 1.6, overall, and 1.6 for both urban and rural.

In grade two the 50th percentile in Paragraph Meaning was grade 2.6 while the urban and rural scores were grade 2.7 and grade 2.7 respectively. Considering the grade scores for urban and rural, it could be said that there was no discrepancy between rural and urban in grades one and two at the 50th percentile in Paragraph Meaning.

In grade three the 50th percentile in Paragraph Meaning was grade 3.1; the urban score was grade 2.7 and rural grade 3.0. This rather low score of 3.1 indicates that pupils of grade three read below the original norms of the tests.

In grade six the 50th percentile in Paragraph Meaning was grade 6.4; for urban it was grade 6.6 and for rural grade 6.2. The grade score for grade six Paragraph Meaning at the 50th percentile was below the original norm of the test by approximately two to seven months. It is of interest

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* This average score of 1.6 was ob[illegible] from the computer when scores were calculated with reference to Paragrapl[illegible]ning achievement only. All other variables were excluded. Scores shown in subsequent parts of the report will vary slightly from this figure as other variables come into play.

to notice the discrepancy of approximately four months in favor of the urban pupils which exists between urban and rural classifications at the 50th percentile.

Overall Scores, by Grade, for Vocabulary, Word Study Skills and Word Meaning and/or Word Reading

As may be seen in Tables 4.45, 4.46, 4.47 and 4.48, only grade one pupils had a specific Vocabulary test. At the 50th percentile the grade one Vocabulary score was grade 1.7. The overall scores at the 50th percentile for grade one in Word Study Skills and Word Reading were grades 1.9 and 1.7 respectively.

Grade two pupils scored grade 3.1 in Word Study Skills at the 50th percentile. The 50th percentile overall score in Word Meaning for grade two was 2.8.

Grade three pupils scored grade 4.2 in Word Study Skills at the 50th percentile. The 50th percentile overall score in Word Meaning for grade three was grade 3.6.

Grade six pupils were not tested specifically for Word Study Skills as the test does not include such a subtest. The grade six overall score for Word Meaning at the 50th percentile was grade 6.4.

Scores of Special Pupil Groups

TABLE 4.49

MEAN READING ACHIEVEMENT SCORES OF SPECIAL GROUPS

	Unpooled Mean	Standard Deviation
A. Scores by Grade:		
Grade 1	18.09	± 4.83
Grade 2	28.77	± 8.51
Grade 3	39.23	±10.64
Grade 6	69.51	±17.63
B. Scores by Grade and Urban/Rural:		
Grade 1 Urban	17.68	± 4.90
Grade 1 Rural	18.50	± 4.75
Grade 2 Urban	29.76	± 8.74
Grade 2 Rural	27.77	± 8.26
Grade 3 Urban	40.73	±10.78
Grade 3 Rural	37.74	±10.36
Grade 6 Urban	71.64	±17.76
Grade 6 Rural	67.38	±17.35
C. Scores by Grade and Sex:		
Grade 1 Male	17.57	± 4.64
Grade 1 Female	18.60	± 4.92
Grade 2 Male	27.99	± 8.60
Grade 2 Female	29.54	± 8.30

TABLE 4.49—Continued

	Unpooled Mean	Standard Deviation
Grade 3 Male	38.22	±10.77
Grade 3 Female	40.25	±10.37
Grade 6 Male	68.67	±17.90
Grade 6 Female	70.35	±17.28
D. Scores by Grade, Urban/Rural and Sex:		
Grade 1 Urban Male	17.19	± 4.87
Grade 1 Urban Female	18.16	± 4.86
Grade 1 Rural Male	17.96	± 4.41
Grade 1 Rural Female	19.04	± 4.97
Grade 2 Urban Male	29.17	± 8.92
Grade 2 Urban Female	30.35	± 8.45
Grade 2 Rural Male	26.81	± 8.24
Grade 2 Rural Female	28.73	± 8.13
Grade 3 Urban Male	40.08	±10.86
Grade 3 Urban Female	41.38	±10.64
Grade 3 Rural Male	36.37	±10.48
Grade 3 Rural Female	39.12	±10.03
Grade 6 Urban Male	70.66	±17.92
Grade 6 Urban Female	72.63	±17.54
Grade 6 Rural Male	66.69	±17.74
Grade 6 Rural Female	68.07	±16.87
E. Scores by Grade and Socio-Economic Level (SEL):		
Grade 1 SEL 1	19.34	± 5.76
Grade 1 SEL 2	18.22	± 5.08
Grade 1 SEL 3	16.70	± 4.44
Grade 2 SEL 1	29.93	± 9.61
Grade 2 SEL 2	29.23	± 8.76
Grade 2 SEL 3	27.13	± 7.94
Grade 3 SEL 1	43.29	±11.54
Grade 3 SEL 2	38.63	±11.07
Grade 3 SEL 3	35.78	± 9.99
Grade 6 SEL 1	74.72	±18.96
Grade 6 SEL 2	69.85	±17.79
Grade 6 SEL 3	63.96	±16.51
F. Scores by Grade, Urban/Rural and SEL:		
Grade 1 Urban SEL 1	18.80	± 6.08
Grade 1 Urban SEL 2	17.92	± 5.08
Grade 1 Urban SEL 3	16.31	± 4.24
Grade 1 Rural SEL 1	19.89	± 4.99
Grade 1 Rural SEL 2	18.52	± 5.08
Grade 1 Rural SEL 3	17.08	± 4.58
Grade 2 Urban SEL 1	31.66	± 9.82
Grade 2 Urban SEL 2	30.11	± 8.99
Grade 2 Urban SEL 3	27.51	± 7.89
Grade 2 Rural SEL 1	28.21	± 9.06

TABLE 4.49—Continued

	Unpooled Mean	Standard Deviation
Grade 2 Rural SEL 2	28.35	± 8.44
Grade 2 Rural SEL 3	26.74	± 7.98
Grade 3 Urban SEL 1	44.66	±11.76
Grade 3 Urban SEL 2	40.32	±11.34
Grade 3 Urban SEL 3	37.21	± 9.89
Grade 3 Rural SEL 1	41.92	±11.13
Grade 3 Rural SEL 2	36.95	±10.58
Grade 3 Rural SEL 3	34.36	±10.00
Grade 6 Urban SEL 1	78.13	±18.31
Grade 6 Urban SEL 2	71.27	±17.22
Grade 6 Urban SEL 3	65.53	±16.79
Grade 6 Rural SEL 1	71.31	±19.80
Grade 6 Rural SEL 2	68.43	±18.41
Grade 6 Rural SEL 3	62.40	±16.25

G. Scores by Grade and Language:

Grade 1 English	18.33	± 4.81
Grade 1 French	17.35	± 4.39
Grade 1 Other Languages	18.22	± 4.56
Grade 1 German	18.44	± 5.43
Grade 2 English	30.52	± 8.69
Grade 2 French	25.73	± 7.03
Grade 2 Other Languages	29.07	± 7.66
Grade 2 German	29.74	± 7.74
Grade 3 English	40.07	±10.77
Grade 3 French	37.13	± 9.91
Grade 3 Other Languages	39.81	± 9.48
Grade 3 German	39.92	± 9.99
Grade 6 English	72.21	±17.77
Grade 6 French	66.35	±16.16
Grade 6 Other Languages	69.79	±16.23
Grade 6 German	69.69	±17.21

H. Scores by Grade, Sex and Language:

Grade 1 Male English	17.62	± 4.60
Grade 1 Male French	16.47	± 3.80
Grade 1 Male Other Languages	17.67	± 4.58
Grade 1 Male German	18.52	± 5.66
Grade 1 Female English	19.04	± 4.92
Grade 1 Female French	18.23	± 4.76
Grade 1 Female Other Languages	18.77	± 4.48
Grade 1 Female German	18.36	± 5.18
Grade 2 Male English	29.55	± 8.76
Grade 2 Male French	24.72	± 6.73
Grade 2 Male Other Languages	27.50	± 7.88
Grade 2 Male German	30.21	± 8.08
Grade 2 Female English	31.50	± 8.48
Grade 2 Female French	26.74	± 7.10
Grade 2 Female Other Languages	30.65	± 7.40

TABLE 4.49—Continued

	Unpooled Mean	Standard Deviation
Grade 2 Female German	29.27	± 7.19
Grade 3 Male English	38.76	±10.94
Grade 3 Male French	36.56	± 9.47
Grade 3 Male Other Languages	37.33	± 8.85
Grade 3 Male German	40.22	±10.70
Grade 3 Female English	41.38	±10.47
Grade 3 Female French	37.70	±10.10
Grade 3 Female Other Languages	42.29	±10.02
Grade 3 Female German	39.62	± 9.15
Grade 6 Male English	71.02	±18.10
Grade 6 Male French	65.15	±16.39
Grade 6 Male Other Languages	70.43	±16.63
Grade 6 Male German	68.09	±16.77
Grade 6 Female English	73.41	±17.34
Grade 6 Female French	67.55	±15.83
Grade 6 Female Other Languages	69.15	±15.89
Grade 6 Female German	71.29	±17.59

Table 4.49 shows the mean reading achievement scores of special pupil groups. Sections G and H of Table 4.49 show the mean reading achievement scores of pupils classified according to language(s) spoken and grade, and according to language(s) spoken, grade and sex. The mean reading achievement score for pupils (across the four grades) who neither heard nor spoke a language other than English at home was 40.29 with standard deviation (SD) of ±08. The mean reading achievement score for those pupils who spoke or heard French at home was 36.64 with SD of ±28. Similarly, for those pupils who spoke or heard Ukrainian, Polish, Italian, Indian or Eskimo at home, the mean reading achievement score was 39.22 with SD of ±26. For those pupils who spoke or heard German at home the mean reading achievement score was 39.45 with SD of ±25.

It must be borne in mind that local factors influence test results, so that interpretations must be made in the light of the total educational situation. This is the purpose of the following sections of this report. If a particular school is in a deprived rural or urban area, the pupils and the teachers must try to surmount difficulties imposed by socio-economic conditions. It would be unfair to judge the educational success attained merely by comparing the reading tests' scores with a national norm, without regard to the difficulties of this area.

General Characteristics of the Sample

Pupils

The data which support the following description of characteristics of pupils was derived from data sheets filled out by participating teachers and from statistics released by The Department of Youth and Education, Province of Manitoba, in September, 1968.

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TABLE 4.50

CHARACTERISTICS OF THE SAMPLE PUPILS, ACCORDING TO GRADE

	Grade 1	S.D.	Grade 2	S.D.	Grade 3	S.D.	Grade 6	S.D.
1. Total Manitoba Pupil Population	22,738		21,850		20,813		19,738	
2. No. of Pupils (data sheet)	6,126		6,285		6,124		5,284	
3. No. of Pupils Tested	8,312		8,118		7,958		6,585	
4. Mean Age of Pupils	7.0	0.33	8.1	0.36	9.1	0.38	12.3	0.47
5. I.Q. of Pupils	100.95	8.60	100.68	8.66	101.04	7.92	104.81	8.85
6. No. of Urban Pupils	2,958		3,001		2,848		2,600	
7. No. of Rural Pupils	3,168		3,284		3,276		2,684	
Socio-Economic Level of Pupils:								
8. No. of Pupils in Upper SEL	606		634		581		574	
9. No. of Pupils in Middle SEL	1,476		1,590		1,483		1,354	
10. No. of Pupils in Lower SEL	4,044		4,061		4,060		3,356	
Sex of Pupils:								
11. No. of Males	3,177		3,270		3,092		2,738	
12. No. of Females	2,949		3,015		3,032		2,546	
Languages Spoken by Pupils:								
13. No. of Pupils Who Speak English and No Other	4,993		5,022		4,883		4,042	

TABLE 4.50—Continued

	Grade 1	S.D.	Grade 2	S.D.	Grade 3	S.D.	Grade 6	S.D.
14. No. of Pupils Who Speak English and French	374		369		382		331	
15. No. of Pupils Who Speak English and German	426		472		451		420	
16. No. of Pupils Who Speak English and Other	333		422		408		491	
17. Percent of Pupils with Mothers Supporting Family	10.41	7.55	8.99	7.65	8.27	6.80	8.36	6.23
Educational-Cultural Background:								
18. No. of Pupils Whose Teacher Indicated that the Average Community Family Attended University or High School	3,930		3,982		3,858		3,287	
19. No. of Pupils Whose Teacher Indicated that the Average Community Family Attended Elementary School	2,049		2,218		2,120		1,861	

Table 4.50 summarizes statistical information about personal characteristics and background details of the pupils who participated in the sample. This information, broken down by grade, was accumulated because these personal characteristics and background details were either known to or thought to affect reading achievement specifically, and education generally.

Row one indicates the number of pupils in each of grades one, two, three and six in all Manitoba schools.

Row two indicates the numbers of pupils of each grade according to data sheets filled out by teachers. These numbered, for grade one, 6,126; for grade two, 6,285; for grade three, 6,124; and for grade six, 5,284. Row three indicates the number of pupils tested; 8,312 in grade one; 8,118 in grade two; 7,958 in grade three; and 6,585 in grade six. These grade totals, as may be seen in the table, each represented approximately one-third of that grade's total Manitoba pupil population.

Row four indicates, as of the period May 1 to 15, 1969, the average ages of pupils of the sample according to grade. Grade one pupils averaged 7.0 years of age with SD of .33; grade two pupils averaged 8.1 years with SD of .36; grade three pupils averaged 9.1 years with SD of .38; and grade six pupils averaged 12.3 years with SD of .47. These averages were calculated from age figures recorded for individual pupils by participating teachers who completed data sheets during the testing period and subsequently submitted them to the research team.

Row five indicates the average IQ's of pupils of the sample in the four grades, according to results of the Otis-Lennon Mental Ability Test administered as part of the testing program. The averages were as follows: grade one, 100.95 with SD of 8.60; grade two, 100.68 with SD of 8.66; grade three, 101.04 with SD of 7.92; and grade six, 104.81 with SD of 8.85.

TABLE 4.51

CLASSIFICATION OF PUPILS BY GRADE AND URBAN/RURAL

	Urban	%	Rural	%	TOTAL	%
Grade 1	2,958	48.30	3,168	51.70	6,126	100
Grade 2	3,001	47.70	3,284	52.30	6,285	100
Grade 3	2,848	46.50	3,276	53.50	6,124	100
Grade 6	2,600	49.20	2,684	50.80	5,284	100
TOTAL	11,407	47.89	12,412	52.11	23,819	100

$X^2 = 3261.47$**

Rows six and seven of Table 4.50 and Table 4.51* indicate the numbers of urban pupils in each of the four grades in the sample and the numbers of rural pupils in each of these grades. The urban and rural pupil populations of the sample for each grade are in all cases fairly close to 3,000 with the rural population in each grade exceeding that of the urban population.

* Chi square test was used in order to determine the probability that the proportion within each of the categories was in accordance with the total proportion.

TABLE 4.52

CLASSIFICATION OF PUPILS BY GRADE AND SOCIO-ECONOMIC LEVEL

	Upper	%	Middle	%	Lower	%	TOTAL	%
Grade 1	606	9.89	1,476	24.09	4,044	66.02	6,126	100
Grade 2	634	9.90	1,590	25.49	4,061	64.61	6,285	100
Grade 3	581	9.48	1,483	24.22	4,060	66.30	6,124	100
Grade 6	574	10.87	1,354	25.62	3,356	63.51	5,284	100
TOTAL	2,395	10.05	5,903	24.78	15,521	65.16	23,819	100

$X^2 = 14.09$*

Rows eight, nine and ten of Table 4.50 and Table 4.52 show the sample pupil population broken down into three socio-economic levels according to grade. There were 606, 634, 581 and 574 upper SEL pupils in grades one, two, three and six, respectively. There were 1,476, 1,590, 1,483 and 1,354 middle SEL pupils in grades one, two, three and six, respectively. There were 4,044, 4,061, 4,060 and 3,356 lower SEL pupils in grades one, two, three and six, respectively. Information on SEL was derived from the data sheet filled out by participating teachers. Teachers classified pupils according to seven categories, but these seven were later reduced to three for computer programming purposes. The final three categories were: (1) upper (professional and managerial); (2) middle (employees); and (3) lower (fishermen and farmers, working proprietors, owners of less than $10,000 and employees other than categories one and two). The distribution of pupils according to these criteria placed fewer pupils in the upper SEL and a considerably greater number of pupils in the lower SEL than in the middle level. Had different classification criteria been used pupils might have been more evenly distributed among the three classifications. The greater number of pupils in the lower level was, in part at least, due to collapsing the final four categories used by teachers on the data sheet.

TABLE 4.53

CLASSIFICATION OF PUPILS BY SOCIO-ECONOMIC LEVEL AND URBAN/RURAL

	Urban	%	Rural	%	TOTAL	%
Upper	1,555	64.93	840	35.07	2,395	100
Middle	3,101	52.53	2,802	47.47	5,903	100
Lower	6,751	43.50	8,770	56.50	15,521	100
TOTAL	11,407	47.89	12,412	52.11	23,819	100

$X^2=449.62$**

TABLE 4.53A

CLASSIFICATION OF PUPILS BY URBAN/RURAL AND SOCIO-ECONOMIC LEVEL

	Urban	%	Rural	%	TOTAL	%
Upper	1,555	13.63	840	6.77	2,395	10.05
Middle	3,101	27.19	2,802	22.57	5,903	24.78
Lower	6,751	59.18	8,770	70.66	15,521	65.17
TOTAL	11,407	100	12,412	100	23,819	100

$X^2=449.62^{**}$

Tables 4.53 and 4.53A indicate pupil number distribution according to SEL and U/R. In both the urban and rural areas pupil populations were distributed in increasingly greater numbers beginning in the upper level and moving to the middle and lower levels. In urban areas the middle level population was approximately twice that of the upper level and the lower level population was approximately twice that of the middle level. In rural areas the middle level population was approximately three times that of the upper level and the lower level approximately three times that of the middle level. Again, this effect may have, in part, been caused by the collapsing of the original seven SEL categories to the three final levels.

Rows 11 and 12 show the sample pupil population broken down according to grade and sex. In grade one there were 3,177 males and 2,949 females. In grade two there were 3,270 males and 3,015 females. In grade three there were 3,092 males and 3,032 females. In grade six there were 2,738 males and 2,546 females.

TABLE 4.54

CLASSIFICATION OF PUPILS BY GRADE AND LANGUAGE

	English	%	French	%	German	%	Other	%	TOTAL	%
Grade 1	4,993	81.55	374	6.11	426	6.90	333	5.44	6,126	100
Grade 2	5,022	79.91	369	5.87	472	7.51	422	6.71	6,285	100
Grade 3	4,883	79.74	382	6.24	451	7.36	408	6.66	6,124	100
Grade 6	4,042	76.49	331	6.26	420	7.96	491	9.29	5,284	100
TOTAL	18,940	79.51	1,456	6.11	1,769	7.43	1,654	6.94	23,819	100

$X^2 = 77.29^{**}$

TABLE 4.54A

CLASSIFICATION OF PUPILS BY LANGUAGE AND GRADE

	English	%	French	%	German	%	Other	%	TOTAL	%
Grade 1	4,993	26.36	374	25.69	426	24.08	333	20.13	6,126	25.72
Grade 2	5,022	26.52	369	25.34	472	26.68	422	25.51	6,285	26.39
Grade 3	4,883	25.78	382	26.24	451	25.49	408	24.67	6,124	25.71
Grade 6	4,042	21.34	331	22.73	420	23.75	491	29.69	5,284	22.18
TOTAL	18,940	100	1,456	100	1,769	100	1,654	100	23,819	100

$X^2 = 77.29^{**}$

Rows 13 to 16 of Table 4.50 and Table 4.54 and 4.54A show sample pupil population broken down according to the languages they spoke as reported by teachers on the data sheet. The indicated figures are subject to error because of the error potential of this kind of reporting and because no proofs were demanded of pupils. The following data reveal the numbers of pupils speaking the languages indicated: in each case the figures are for grades one, two, three and six respectively: English—4,993, 5,022, 4,883 and 4,042; English and French—374, 369, 382 and 331; English and German—426, 472, 451 and 420; and English and a second language other than German or French—333, 422, 408 and 491.

TABLE 4.55

CLASSIFICATION OF PUPILS BY LANGUAGE AND URBAN/RURAL

	Urban	%	Rural	%	TOTAL	%
English	9,381	49.53	9,559	50.47	18,940	100
French	532	36.54	924	63.46	1,456	100
Other	898	54.29	756	45.71	1,654	100
German	596	33.69	1,173	66.31	1,769	100
TOTAL	11,407	47.89	12,412	52.11	23,819	100

$X^2=265.66^{**}$

TABLE 4.55A

CLASSIFICATION OF PUPILS BY URBAN/RURAL AND LANGUAGE

	Urban	%	Rural	%	TOTAL	%
English	9,381	82.24	9,559	77.02	18,940	79.52
French	532	4.66	924	7.44	1,456	6.11
Other	898	7.87	756	6.09	1,654	6.94
German	596	5.23	1,173	9.45	1,769	7.43
TOTAL	11,407	100	12,412	100	23,819	100.00

$X^2=265.66^{**}$

It is of interest to note in Tables 4.55 and 4.55A that 924 rural pupils spoke French, compared to 532 urban pupils. This difference increased with German as a second language where 1,173 rural pupils spoke German compared to 596 urban pupils.

TABLE 4.56

CLASSIFICATION OF PUPILS BY SOCIO-ECONOMIC LEVEL AND LANGUAGE

	English	%	French	%	German	%	Other	%	TOTAL	%
Upper	2,109	88.06	93	3.88	95	3.97	98	4.09	2,395	100
Middle	4,840	81.99	382	6.47	315	5.34	366	6.20	5,903	100
Lower	11,991	77.26	981	6.32	1,244	8.01	1,305	8.41	15,521	100
TOTAL	18,940	79.52	1,456	6.11	1,654	6.94	1,769	7.43	23,819	100

$X^2 = 204.42^{**}$

TABLE 4.56A

CLASSIFICATION OF PUPILS BY LANGUAGE AND SOCIO-ECONOMIC LEVEL

	English	%	French	%	German	%	Other	%	TOTAL	%
Upper	2,109	11.14	93	6.39	95	5.74	98	5.54	2,395	100
Middle	4,840	25.55	382	26.24	315	19.04	366	20.69	5,903	100
Lower	11,991	63.31	981	67.37	1,244	75.22	1,305	73.77	15,521	100
TOTAL	18,940	100	1,456	100	1,654	100	1,769	100	23,819	100

$X^2 = 204.42^{**}$

With reference to SEL levels and language, as shown in Tables 4.56 and 4.56A, there were more pupils in the lower than in higher SEL groups: at the lower level more pupils spoke German as a second language than "Other" languages, and more pupils spoke "Other" languages than French. In the middle level more pupils spoke French than spoke German and more pupils spoke German than spoke "Other" languages. In the upper level, the numerical differences were not great between bilingual groups.

TABLE 4.57

CLASSIFICATION OF PUPILS BY MONOLINGUAL-BILINGUAL AND SOCIO-ECONOMIC LEVEL

	Mono-lingual English Only	%	Bilingual: English and any other	%	TOTAL	%
Upper	2,109	88.06	286	11.94	2,395	100
Middle	4,840	81.99	1,063	18.01	5,903	100
Lower	11,991	77.26	3,530	22.74	15,521	100
TOTAL	18,940	79.52	4,879	20.48	23,819	100

$X^2=178.14^{**}$

Tables 4.57 and 4.57A show that in all levels the monolingual English speaking pupil totals were greater than the collective bilingual totals: in the upper SEL level approximately seven times greater; in the middle level approximately four and one-half times greater; and in the lower level approximately three times greater.

TABLE 4.57A

CLASSIFICATION OF PUPILS BY MONOLINGUAL-BILINGUAL AND SOCIO-ECONOMIC LEVEL

	Mono-lingual English Only	%	Bilingual: English and any other	%	TOTAL	%
Upper	2,109	11.14	286	5.86	2,395	100
Middle	4,840	25.55	1,063	21.79	5,903	100
Lower	11,991	63.31	3,530	72.35	15,521	100
TOTAL	18,940	100	4,879	100	23,819	100

$X^2=178.14^{**}$

TABLE 4.58

CHARACTERISTICS OF THE SAMPLE— TEACHERS, CLASSIFIED ACCORDING TO GRADE

	Grade 1			Grade 2			Grade 3			Grade 6		
	No. of Teachers	Mean Achievement	S.D.	No. of Teachers	Mean Achievement	S.D.	No. of Teachers	Mean Achievement	S.D.	No. of Teachers	Mean Achievement	S.D.
1. No. of Teachers	322	16.55	2.73	324	27.78	4.95	319	36.71	6.37	269	65.94	10.20
2. No. of Urban Teachers	123	16.86	2.85	125	28.47	5.38	125	38.47	6.63	108	68.24	10.41
3. No. of Rural Teachers	199	16.24	2.65	199	27.09	4.60	194	34.95	5.90	161	63.64	9.52
4. Experience: 1-2 years	79	16.07	2.20	117	26.65	4.99	125	35.79	6.51	84	63.96	9.95
5. 3-5 years	80	16.34	2.71	106	27.94	5.20	78	36.36	6.46	50	66.38	8.97
6. 6 and over	163	17.24	2.87	101	28.76	4.48	116	37.97	5.84	135	67.47	10.61
7. Academic Standing of Teachers 0-1 years university	245	16.47	2.60	253	27.91	5.05	250	36.92	5.99	160	66.14	9.70
8. 2 years university and over	77	16.62	3.10	71	27.65	4.61	69	36.49	7.63	109	65.73	10.76

ED 100

Row 17 of Table 4.50 indicates the percentage of pupils from families supported by mothers. This information was also gathered from pupils by teachers for data-sheet reporting and was subject to the same error possibilities as was that reference to languages spoken by pupils. In grade one, 10.41 percent (SD, 7.55) of pupils; in grade two, 8.99 percent (SD, 7.65); in grade three, 8.27 percent (SD, 6.80); and in grade six, 8.36 percent (SD, 6.23).

Rows 18 and 19 of Table 4.50 indicate the number of pupils, by grades, who came from communities where the average family, (A) had a university or high school educational-cultural background: or, (B) had an elementary school educational-cultural background. The (A) group numbered 3,930 in grade one: 3,982 in grade two: 3,858 in grade three: and 3,287 in grade six. The (B) group consisted of 2,049 in grade one: 2,213 in grade two: 2,120 in grade three; and 1,861 in grade six.

(See Table 4.58 on Page 88).

Table 4.58 summarizes statistical information about personal characteristics and background details of the teachers who participated in the sample. This information, broken down by grades, was collected because these details of personal characteristics and background were either known to or thought to affect reading achievement.

For each grade there are three columns where the first column indicates the number of teachers, the second column the mean reading achievements of the pupils who are in the classes of the teachers, and the third column the SD of the mean. Row one indicates that 322 teachers were in grade one classes; their pupil's mean reading achievement was 16.55 with a SD of 2.73; in grade two there were 324 teachers with the mean reading achievement of their pupils 27.78 and a SD of 4.95; in grade three there were 319 teachers with the mean reading achievement of their pupils 36.71 and a SD of 6.37; and in grade six there were 269 teachers with the mean reading achievement of their pupils 65.94 and a SD of 10.20. It is of interest to note here that the SD of the mean reading achievement scores increases as the grade increases too, which means that the higher the grade the less homogeneous the class.

TABLE 4.59

CLASSIFICATION OF TEACHERS BY GRADE AND URBAN/RURAL

	Urban	%	Rural	%	TOTAL	%
Grade 1	123	38.20	199	61.80	322	100
Grade 2	125	38.58	199	61.42	324	100
Grade 3	125	39.18	194	60.82	319	100
Grade 6	108	39.42	166	60.58	274	100
TOTAL	481	38.82	758	61.18	1,239	100

X^2=.09 N.S.

Rows two and three of Table 4.58 and Table 4.59* indicate the numbers of urban teachers and rural teachers in each of the four grades in the sample. The chi square test for this distribution produced a non-significant value which indicates that the distribution within each of the categories was not in accordance with the stated hypothesis. For example, at first glance there are more rural teachers than urban teachers in grades one, two, three and six. The higher number of rural teachers does not by definition, indicate that in all grades there are more rural than urban teachers. In interpreting the results, the reader is cautioned that the stated number of urban teachers or rural teachers does not automatically mean a one-to-one correspondence, *i.e.*, one grade, one teacher. It could well mean that the same teacher teaches reading in grade one, grade two, grade three and grade six. The probability of this occurring is higher in the rural schools where the teacher teaches not only reading in grades one, two, three and six, but all subjects. It is worth noting here (although it was not tested statistically) that the higher the grade the greater the difference of the mean reading achievement scores of the pupils of urban and rural teachers. For example, the difference of the pupils' mean reading achievement scores for urban and rural teachers in grade one was .61 ; in grade two, 1.38 ; in grade three, 3.52 ; and in grade six, 4.60 (see ch. 8).

TABLE 4.60

CLASSIFICATION OF TEACHERS BY EXPERIENCE AND URBAN/RURAL

Experience	Urban	%	Rural	%	TOTAL	%
1-2 Years	137	33.83	268	66.17	405	100
3-5 Years	123	39.17	191	60.83	314	100
6 years and over	221	42.91	294	57.09	515	100
TOTAL	481	38.99	753	61.01	1,234	100

$X^2=7.85$*

TABLE 4.60A

CLASSIFICATION OF TEACHERS BY URBAN/RURAL AND EXPERIENCE

Experience	Urban	%	Rural	%	TOTAL	%
1-2 Years	137	28.48	268	35.59	405	32.82
3-5 Years	123	25.57	191	25.37	314	25.45
6 Years and over	221	45.95	294	39.04	515	41.73
TOTAL	481	100	753	100	1,234	100

$X^2=7.85$*

* Chi square test was used in order to determine the probability that the proportion within each of the categories was in accordance with the total proportion.

TABLE 4.61

CLASSIFICATION OF TEACHERS BY GRADE AND EXPERIENCE

	1-2 Years of Exp.	%	3-5 Years of Exp.	%	6 Yrs. and over of Exp.	%	TOTAL	%
Grade 1	79	24.54	80	24.84	163	50.62	322	100
Grade 2	117	36.11	106	32.72	101	31.17	324	100
Grade 3	125	39.18	78	24.46	116	36.36	319	100
Grade 6	84	31.23	50	18.58	135	50.19	269	100
TOTAL	405	32.82	314	25.45	515	41.73	1,234	100

$X^2 = 45.33^{**}$

TABLE 4.61A

CLASSIFICATION OF TEACHERS BY EXPERIENCE AND GRADE

	1-2 Years of Exp.	%	3-5 Years of Exp.	%	6 Yrs. and over of Exp.	%	TOTAL	%
Grade 1	79	19.51	80	25.48	163	31.66	322	26.09
Grade 2	117	28.89	106	33.76	101	19.61	324	26.26
Grade 3	125	30.86	78	24.84	116	22.52	319	25.85
Grade 6	84	20.74	50	15.92	135	26.21	269	21.80
TOTAL	405	100	314	100	515	100	1,234	100

$X^2 = 45.33^{**}$

Rows four, five and six of Table 4.58 and Tables 4.60, 4.60A, 4.61, 4.61A show the sample teacher population broken down into three levels of experience according to grade and U/R classification. The number of teachers with one or two years of experience was: in grade one from 322 teachers—79 with the mean reading achievement of their pupils 16.07 and a SD of 2.20; in grade two from 324 teachers—117 with the mean reading achievement of their pupils 26.65 and a SD of 4.99; in grade three from 319 teachers—125 with the mean reading achievement of their pupils 35.79 and a SD of 6.51; and in grade six from 269 teachers—84 with the mean reading achievement of their pupils 63.96 and a SD of 9.95. With between three and five years of experience, there were 80 teachers in grade one, with the mean reading achievement of their pupils 16.34 and a SD of 2.71; 106 in grade two with the mean reading achievement of 27.94

and a SD of 5.20; 78 in grade three with the mean reading achievement of their pupils 36.36 and a SD of 6.46; and 50 in grade six with the mean reading achievement of their pupils 66.38 and a SD of 8.97. With six and over years of experience, there were 163 in grade one with the mean reading achievement of their pupils 17.24 and a SD of 2.87; 101 in grade two with the mean reading achievement of their pupils 28.76 and a SD of 4.48; 116 in grade three with the mean reading achievement of their pupils 37.97 and a SD of 5.84; and 135 in grade six with the mean reading achievement of their pupils 67.47 and a SD of 10.61. Table 4.60 indicates the number of teachers classified according to experience and U/R. The table indicates that with between 1-2 years of experience there are 137 teachers in urban areas and 268 in rural areas; between 3 and 5 years of experience there are 123 in urban areas and 191 in rural areas; and with 6 years and over three are 221 teachers in urban areas and 224 in rural areas. The greatest difference exists on the level of 1 to 2 years of experience where 161 more teachers with that type of experience are in rural areas than in urban.

TABLE 4.62
CLASSIFICATION OF TEACHERS BY GRADE AND ACADEMIC STANDING

	0-1 Years of University Training	%	2 Years and over of University Training	%	TOTAL	%
Grade 1	245	76.09	77	23.91	322	100
Grade 2	253	78.09	71	21.91	324	100
Grade 3	250	78.37	69	21.63	319	100
Grade 6	160	59.48	109	40.52	269	100
TOTAL	908	73.58	326	26.42	1,234	100

$X^2=35.66^{**}$

TABLE 4.62A
CLASSIFICATION OF TEACHERS BY ACADEMIC STANDING AND GRADE

	0-1 Years of University Training	%	2 Years and over of University Training	%	TOTAL	%
Grade 1	245	26.99	77	23.62	322	26.09
Grade 2	253	27.86	71	21.78	324	26.26
Grade 3	250	27.53	69	21.17	319	25.85
Grade 6	160	17.62	109	33.43	269	21.80
TOTAL	908	100	326	100	1,234	100

$X^2=35.66^{**}$

TABLE 4.63

CLASSIFICATION OF TEACHERS BY EXPERIENCE AND ACADEMIC STANDING

Academic Standing	1-2 Years of Exp.	%	3-5 Years of Exp.	%	6 Yrs. and over of Exp.	%	TOTAL	%
0-1 Year of University Training	329	36.23	248	27.31	331	36.46	908	100
2 Yrs. and over of Univ. Training	76	23.31	66	20.25	184	56.44	326	100
TOTAL	405	32.82	314	25.45	515	41.73	1,234	100

$X^2 = 39.84^{**}$

TABLE 4.63A

CLASSIFICATION OF TEACHERS BY ACADEMIC STANDING AND EXPERIENCE

Academic Standing	1-2 Years of Exp.	%	3-5 Years of Exp.	%	6 Yrs. and Over of Exp.	%	TOTAL	%
0-1 Year of University Tr.	329	81.23	248	78.98	331	64.27	908	73.58
2 Years and over of University Training	76	18.77	66	21.02	184	35.73	326	26.42
TOTAL	405	100	314	100	515	100	1,234	100

$X^2 = 39.84^{**}$

TABLE 4.64

NUMBER OF TEACHERS BY URBAN/RURAL AND ACADEMIC STANDING

Academic Standing	Urban	%	Rural	%	TOTAL	%
0-1 Year of University Tr.	299	32.93	609	67.07	908	100
2 Years & over of University Training	182	55.83	144	44.17	326	100
TOTAL	481	39.98	1,753	61.02	1,234	100

$X^2=52.86^{**}$

TABLE 4.64A

NUMBER OF TEACHERS BY ACADEMIC STANDING AND URBAN/RURAL

Academic Standing	Urban	%	Rural	%	TOTAL	%
0-1 Year of University Tr.	299	62.16	609	80.88	908	73.58
2 Years & over of University Training	182	37.84	144	19.12	326	26.42
TOTAL	481	100	753	100	1,236	100

$X^2=52.86^{**}$

Rows seven and eight of Table 4.58 and Tables 4.62, 4.62A, 4.63, 4.63A, 4.64 and 4.64A show the sample teacher population broken down into two levels of university training according to grade, experience and U/R classification. There were 245, 253, 250 and 160 with 0 to 1 years of university training in grades one, two, three and six, respectively. The corresponding mean reading achievement of their pupils was: for grade one 16.47 and a SD 2.60; for grade two 27.91 and a SD 5.05; for grade three 36.92 and a SD 5.99; and for grade six 66.14 and a SD 9.70. There were 77, 71, 69 and 109 teachers with two or more years of university training in grades one, two, three and six, respectively. The corresponding mean reading achievement of their pupils was: for grade one 16.62*. Table 4.63 indicates the number of teachers classified according to experience and academic standing. There are 329, 248, 331 teachers with one year of university training or less, one to two years, three to five years, and six and over years of experience, respectively. Similarly, there are 76, 66 and 184 teachers with two years and over of university training, one to two years, three to five years, and six years and over of experience, respectively.

Tables 4.64 and 4.64A indicate the number of teachers classified according to U/R and academic standing. There are 299 teachers with 0 to one year of university training in the urban areas and 609 teachers with the same qualifications in the rural areas. While there are 182 teachers with two years and over of university training in the urban areas, there are 144 teachers with the same qualifications in the rural areas.

In a more refined analysis where it was possible to eliminate the pupils' mean reading achievement scores from the analysis and thus to have the teachers' characteristics recorded only once, it was possible to obtain more accurate findings with reference to teacher qualifications. Of 1,234 teachers who were in the sample, 747 teachers had only one year of university training; 33 teachers had three years of university training; 69 teachers had four years of university training; and six teachers had more than four years.

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* The mean with the highest SD indicates that the spread is greater than that of the mean with the smaller SD. The class with the higher SD will present different and more difficult teaching problems.

CHAPTER 5

CORRELATIONS FOR SELECTED INDEPENDENT AND DEPENDENT VARIABLES

As part of the analysis of the study, inter-correlations for all possible combinations were computed for the 160 variables used in order to identify the significant correlation coefficients for further analysis. Separate calculations were made for each grade. From the mass of detail certain results have been extracted for reporting here.

TABLE 5.1

SIGNIFICANT CORRELATIONS OF VARIABLES WITH PARAGRAPH MEANING (GRADE ONE)

(Significant at the .05 level)

Number	Description	Abbr.	Correl. Coeff.
15	Socio-economic level of family	S-EL	.28**
17	Pupils speak language other than English	LOE	−.14
24	Language Arts course while teacher training	LATT	−.16
37	Most recent in-service session attended by teacher	I-SS	.12
39	Reading readiness assessed by teacher observation	RRTO	−.15
41	Reading readiness assessed by teacher observation and readiness test	RRTORT	−.16
47	Pupils reported as reading below potential level	CRBPL	−.26**
76	Grouping determined by teacher observation only	G:TO	−.11
114	Received assistance in organizing and planning reading activities	AR:OPR	.11
131	When help needed determined by teacher observation	TODHN	−.14
132	When help needed determined by teacher observation and testing	TOTDHN	.12
153	Number of pupils per class	S/C	.11
154	Average community family attended university	AF:AU	.16
155	Average community family attended high school	AF:AH	.17
156	Average community family attended elementary	AF:AE	−.22**

**significant at the .01 level

TABLE 5.2

SIGNIFICANT CORRELATIONS OF VARIABLES WITH PARAGRAPH MEANING (GRADE TWO)

(Significant at the .05 level)

Number	Description	Abbr.	Correl. Coeff.
15	Socio-economic level of family	S-EL	.34**
17	Pupils speak language other than English	LOE	−.28**
38	Class time per week for reading program	CTRP	−.12
44	Pupil ability assessed by teacher observation	CATO	−.18
45	Pupil ability assessed by teacher observation and published test	CATORT	.15
47	Pupils reported as reading below potential level	CRBPL	−.37**
48	Kindergarten experience of class	CKE	.26**
74	Other type of teacher-pupil relationship used	TPR:O	.10
100	Basal reader predominantly used: Gage	PR:G	.14
111	Supplementary reading material used: supplementary phonics program	SRM:SPP	−.13
136	Access to public library	APL	−.13
153	Number of pupils per class	S/C	−.05
154	Average community family attended university	AF:AU	.12
155	Average community family attended high school	AF:AH	.27**
156	Average community family attended elementary	AF:AE	−.30**
157	Language other than English spoken at home by pupils	CSLOTE	−.23**
159	Language other than English neither heard nor spoken by pupils at home	CNHSOL	.20**
160	Percentage of class speaking other language at home	PCSOL	−.23**

**Significant at the .01 level.

TABLE 5.3

SIGNIFICANT CORRELATIONS OF VARIABLES WITH PARAGRAPH MEANING (GRADE THREE)

(Significant at the .05 level)

Number	Description	Abbr.	Correl. Coeff.
15	Socio-economic level of family	S-EL	.26**
17	Pupils speak language other than English	LOE	−.35**
24	Language Arts course while teacher training	LATT	−.20**
30	Elementary English, most helpful journal	HJEE	.14
37	Most recent in-service session attended by teacher	I-SS	.12
39	Reading readiness assessed by teacher observation	RRTO	−.22**
44	Pupil ability assessed by teacher observation	CATO	−.20**
45	Pupil ability assessed by teacher observation and published test	CATORT	.16

TABLE 5.3—Continued

SIGNIFICANT CORRELATIONS OF VARIABLES WITH PARAGRAPH MEANING (GRADE THREE)—Continued

(Significant at the .05 level)

Number	Description	Abbr.	Correl. Coeff.
46	Pupil ability assessed by other methods	CAO	.11
47	Children reported as reading below potential level	SRBPL	−.30**
48	Kindergarten experience of class	CKE	.24**
76	Grouping determined by teacher observation only	G:TO	−.17
77	Grouping determined by combination of methods	G:C	.16
87	Teacher-made tests for grouping practices: achievement test	TMT:A	−.18
111	Supplementary reading material used: supplementary phonics program	SRM:SPP	−.11
116	Major assistance received from supervisor	AR:S	−.23**
132	When help needed determined by teacher observation and testing	TOTDHN	.12
134	Existence of central school library	SL	−.12
136	Access to public library	APL	−.18
138	Books per pupil in school library	B/PSL	−.19
142	Number of books in classroom library	NBCL	.11
145	Classroom library used for recreational reading	CL:RR	−.23**
146	Classroon library used for research	CL:R	.24**
153	Number of students per class	S/C	.13
155	Average community family attended high school	AF:AH	.30**
156	Average community family attended elementary	AF:AE	−.31**
157	Language other than English spoken at home by pupils	CSLOTE	−.23**
159	Language other than English neither heard nor spoken by pupils at home	CNHSOL	.14

**Significant at the .01 level.

TABLE 5.4

SIGNIFICANT CORRELATIONS OF VARIABLES WITH PARAGRAPH MEANING (GRADE SIX)

(Significant at the .05 level)

Number	Description	Abbr.	Correl. Coeff.
15	Socio-economic level of family	S-EL	.40**
17	Pupils speak language other than English	LOE	−.42**
38	Class time per week for reading program	CTRP	−.23**
44	Pupil ability assessed by teacher observation	CATO	−.20**
45	Pupil ability assessed by teacher observation and published test	CATORT	.16

TABLE 5.4—Continued

SIGNIFICANT CORRELATIONS OF VARIABLES WITH PARAGRAPH MEANING (GRADE SIX)—Continued

(Significant at the .05 level)

Number	Description	Abbr.	Correl. Coeff.
47	Pupils reading below potential level	CRBPL	.44**
48	Kindergarten experience or class	CKE	.34**
66	Classroom organization: Joplin type	CO:J	.14
76	Grouping determined by teacher observation only	G:TO	−.18
105	Supplementary reading material used: self instructional material	SRM:I	.14
126	Help for pupils from reading specialist occasionally	PH:RSO	.16
134	Existence of central school library	SL	−.19
136	Access to public library	APL	−.27**
153	Number of pupils per class	S/C	.18
154	Average community family attended university	AF:AU	.17
155	Average community family attended high school	AF:AH	.39**
156	Average community family attended elementary	AF:AE	−.44**
157	Language other than English spoken at home by pupils	CSLOTE	−.34**
159	Language other than English neither heard nor spoken by pupils at home	CNHSOL	.28**
160	Percentage of class speaking other language at home	PCSOL	−.41**

**Significant at the .01 level.

Tables 5.1 to 5.4 indicate the significant correlations of variables, separately selected for each grade, with reading achievement as measured by SRAT. In grade one, correlated with reading achievement were 15 variables; in grade two, 18 variables; in grade three, 28 variables; and in grade six, 20 variables.

Discussion of the contributions of the variables which were correlated with reading achievement is presented in subsequent chapters.

The lowest correlations of all the variables with achievement in grade one were number of pupils per class, received assistance in organizing and planning reading activities, and grouping determined by teacher-observation only. The highest correlation for grade one was SEL. The second highest correlation with a negative correlation coefficient was pupils reported as reading below potential level. It appears that the higher the percentage of pupils reading below potential level as reported by teachers, the higher the achievement of these pupils.

With reference to grade two, the lowest correlation was number of pupils per class, and the highest was children read below potential level as reported by teachers with a negative correlation coefficient. The second highest correlation with reading achievement in grade two was SEL. Two other variables of relatively high correlation coefficients were: average community family attended elementary and pupils speak language other than English—both with a negative correlation coefficient. This indicates

that the higher the percentage of pupils who reported that they spoke a second language the lower the achievement. Similarly for average community being reported as attended elementary—the higher the percentage of the communities reporting attendance at elementary school, the lower the pupils' achievement.

In grade three the lowest correlations were reported in the pupil's ability assessed by other methods, supplementary reading materials used were supplementary phonics programs, and number of books in classroom library. The highest correlation for grade three was observed with pupils who speak languages other than English. The negative correlation coefficient of that variable indicates its significance to reading achievement. The more teachers reported that pupils spoke language other than English, the lower the reading achievement. The second highest correlation with reading achievement was when average community family (as reported by the teacher) attended elementary. The correlation coefficient was negative which means that the more average community families were reported to have attended elementary, the lower the achievement of the pupils. It is of interest to note here that the third highest positive correlation with reading achievement was noted with the variable : average community family attended high school.

The lowest correlation for grade six was found to be between achievement and supplementary reading materials used for instructional materials. The highest correlations with achievement were found to be average community family attended elementary (negative), and children reading below potential level as reported by teacher (positive). It should be noted that in comparison with grades one, two and three, grade six had a greater number of high correlations between reading achievement and other variables. Other variables with a negative correlation coefficient to reading achievement were : pupils speak language other than English and percentage of class speaking other language at home. The SEL variable produced a relatively high (.40) correlation coefficient with reading achievement in grade six. It seems that SEL has its highest correlation with achievement in grade six.

Variables Common to Grades One, Two, Three and Six

TABLE 5.5

CORRELATIONS WITH READING ACHIEVEMENT FOR VARIABLES SHOWING SIGNIFICANT CORRELATION COEFFICIENTS IN ALL FOUR GRADES: ONE, TWO, THREE AND SIX

Variable Number	Abbreviation	Grade Correlation Grade 1	Grade 2	Grade 3	Grade 6
15	S-EL	**	**	**	**
17	LOE	*	**	**	**
47	CRBPL	**	**	**	**
153	S/C	*	*	*	*
155	AF:AH	*	**	**	**
156	AF:AE	**	**	**	**

**Significant at the .01 level.

*Significant at the .05 level.

Shown in Table 5.5 are the six variables found to be common to all grades—one, two, three and six. These variables were: 15, SEL; 17, pupils speak language other than English; 47, pupils (as reported by teacher) read below potential level; 153, number of pupils per class; 155, average community family attended high school; and number 156, average community family attended elementary school.

It is of interest to note that SEL correlated positively in all grades while pupils speak language other than English correlated negatively in all grades. Also, it should be noted that the negative correlation between "pupils speak language other than English" and reading achievement increases from grade one to grade six. With reference to the variable pupils (as reported by teacher) read below potential level, there was a negative correlation for grades one, two and three and a positive correlation for grade six. The fact that this variable was reported by the teacher in each case may have been the cause of the differences in sign between grades one, two, three and grade six. Teachers of greater experience are perhaps more likely to estimate better such pupil potential, and very often the less experienced teacher has charge of lower grades—the grades where the negative sign appears in the correlation. Another possible explanation could be that reading difficulties, themselves, are less easily recognized by a teacher in the early grades and more easily recognized by the time the pupils have reached grade six. With reference to number of pupils per class there was a positive correlation for grades one, three and six while in grade two there was a low, but significant, negative correlation.

With reference to the variable average community family attended high school as reported by the teacher, it was found that the teacher's report correlated positively with reading achievement, while the report of teachers reporting the average community family attended elementary produced a negative correlation for all grades. In an attempt to explain the results, it is necessary to consider that the teachers, in reporting the education of the community, attempted to estimate an average which made this question an unreliable one.

The intercorrelations between these variables which were significant to achievement for each of the grades are presented in Appendix II.

CHAPTER 6

PRINCIPAL COMPONENT ANALYSIS AND REGRESSION ANALYSIS

INTRODUCTION

In the early stages of analysis of the accumulated data it became necessary to reduce the number of variables in order that interpretations could be made more readily. Each of the four tables of intercorrelations for grades one, two, three and six was, therefore, subjected to a principal component analysis. The original variables for each of the grades were reduced to sets of 111, 98, 114 and 110 variables for grades one, two, three and six, respectively, based on the strength of their correlation with achievement—when the .05 level of significance was used. Although, all the analyses were performed on one dependent variable, namely that of Paragraph Meaning, the variables Word Reading, Word Meaning, Vocabularly and Word Study Skills were always retained as criteria. The principal component analysis was used so that the retained variables were divided into few orthogonal (independent) domains. An adequate degree of intercorrelation existed among variables comprising the domain.

Dr. F. Chebib of the University of Manitoba provided a program for a principal component analysis. Ten principal components were extracted from correlation matrix of each grade. The percent variability explained by these 10 components was: for grades one, two, three and six, 35.31 percent, 34.31 percent, 36.64 percent and 36.71 percent respectively.

TABLE 6.1

PRINCIPAL COMPONENT LOADING MATRIX FOR 111 VARIABLES FOR GRADE ONE (*)

Variable No.	Abbreviation	C_1	C_2	C_3	Variable No.	Abbreviation	C_1	C_2	C_3
2	U/R	52	−44	−17	24	LATT	10	−06	02
3	C:ES	43	13	−18	25	RTT	04	02	−12
6	PTT	−09	26	−09	26	PMRTT	−05	01	−27
7	TASU	−14	34	−10	28	CCTT	−00	16	−06
8	Age	54	18	−23	29	LRC	−07	15	03
9	Boys	16	−12	−04	30	HJEE	03	13	−08
13	I/Q	−57	−14	06	31	HJRT	−17	17	−26
15	S-EL	28	25	−19	33	HJI	02	−11	−13
17	LOE	**75**	−01	−12	34	HJGT	−00	00	26
19	TTBTC	−05	−04	−08	37	I-SS	04	−00	−02
20	TTUM	−03	−09	11	38	CTRP	−31	21	04
21	TTMTC	06	05	01	39	RRTO	45	01	30
22	TTO	−01	09	−09	40	RRRT	10	−14	01
23	PMTT	−03	00	36	41	RRTORT	−49	05	−32

TABLE 6.1—Continued

PRINCIPAL COMPONENT LOADING MATRIX FOR 111 VARIABLES FOR GRADE ONE (*)—Continued

Variable No.	Abbreviation	C_1	C_2	C_3	Variable No.	Abbreviation	C_1	C_2	C_3
43	CAPT	−11	09	03	109	SRM:CD	−05	−06	07
44	CATO	38	−17	45	110	SRM:TD	04	06	06
45	CATOPT	−36	18	−47	111	SRM:SPP	07	−01	02
46	CAO	01	−12	−03	112	SRM:T	−06	−03	08
47	CRBPL	45	14	−13	113	SRM:O	−11	05	−23
48	CKE	−49	25	12	114	AR:OPR	13	−34	05
49	HDKE	−04	23	22	119	H:SA	48	−12	−02
51	FDKE	−00	−09	−08	120	H:AN	−57	07	16
53	OKE	−07	−16	−22	121	H:EC	26	06	−22
54	KE5S	19	03	−07	122	PH:NOC	04	04	07
56	KE5N	20	**76**	−06	123	PH:LOC	10	−02	06
57	KE5D	−26	**−75**	12	124	PH:CTOC	−09	−09	−10
59	G16O	10	−01	−07	125	PH:AT	−04	11	02
61	G16N	**68**	09	38	127	PH:RSR	−11	07	−05
62	G16D	−19	**68**	−09	128	PH:O	−01	02	−07
63	G1O	−02	−00	04	131	TODHN	20	09	46
64	CO:SC	−03	−00	04	132	TOTDHN	−20	−04	**−51**
67	CO:GG	−03	−07	01	134	SL	31	−30	−11
68	CO:NG	05	06	−18	135	SLE	−05	52	17
69	CO:O	10	04	−05	136	APL	55	−13	−17
70	TPR:V	30	−12	−11	137	NBSL	00	**65**	**48**
71	TPR:GL	10	12	37	139	CL	26	−27	12
72	TPR:II	12	−03	−02	141	CCL	−24	25	−09
73	TPR:V	−29	−05	−28	142	NBCL	08	−11	−15
74	TPR:O	01	03	−08	145	CL:RR	−11	23	44
76	G:TO	34	−14	**47**	147	CL:CP	10	−23	**−47**
77	G:C	−32	16	−45	148	LS:FTL	−04	10	28
79	CG:RT	−17	10	38	149	LS:PTL	00	53	−17
80	CG:DT	10	−11	11	150	LS:CT	07	−37	−00
81	CG:AT	19	09	12	151	LS:S	04	−14	−18
82	CG:AbT	11	03	−07	152	LS:O	−09	−29	12
83	CG:C	−08	−12	−53	153	P/C	−08	28	−01
85	TMT:R	−01	18	44	154	AF:AU	−13	00	11
87	TMT:A	01	01	−05	155	AF:AH	−65	−21	09
88	TMT:C	−05	−16	−37	156	AF:AE	**69**	21	−13
89	BIM:BR	20	−03	21	157	CSLOTE	55	15	−10
90	BIM:BRS	−00	−06	00	158	CHNSOL	−05	12	08
93	BIM:C	−21	−00	−31	159	CNHSOL	−46	−25	02
100	FR:G	−00	−06	00	160	PCSOL	61	10	−08
103	PR:C-Msc	−15	37	11					
104	PR:O	06	00	−04	Variability explained (%)		6.61	5.14	4.15
106	SRM:P	−05	12	04					
108	SRM:SS	09	−16	−09	(*) Decimal points omitted.				

TABLE 6.2

PRINCIPAL COMPONENT LOADING MATRIX FOR 98 VARIABLES FOR GRADE TWO (*)

Variable No.	Abbreviation	C_1	C_2	C_3	Variable No.	Abbreviation	C_1	C_2	C_3
2	U/R	**57**	−20	21	61	G16N	−09	**79**	32
3	C:ES	33	26	21	62	G16D	02	**−81**	−28
6	PTT	−03	23	05	63	G1O	05	−01	−05
7	TASU	−13	14	**72**	64	CO:SC	06	−05	**48**
8	Age	38	30	08	66	CO:J	−15	07	−35
9	Boys	18	17	14	67	CO:GG	01	−02	−23
13	I/Q	−55	−30	08	68	CO:NG	02	09	−08
15	S-EL	28	11	05	69	CO:O	02	06	−05
17	LOE	**73**	08	−33	70	TPR:U	23	−05	00
18	TTBU	00	02	12	71	TPR:GL	−08	04	17
19	TTBTC	−04	07	22	72	TPR:II	24	12	04
20	TTUM	−00	01	−30	73	TPR:V	−11	−06	−14
21	TTMTC	01	−13	00	74	TPR:O	01	06	−16
22	TTO	03	08	05	76	G:TO	34	−14	20
23	PMTT	−09	06	−06	77	G:C	−35	14	−21
24	LATT	00	12	−03	85	TMT:R	02	−13	−18
25	RTT	−00	−02	12	86	TMT:D	06	14	−29
26	PMRTT	08	−12	00	87	TMT:A	01	−06	02
28	CCTT	−05	01	02	88	TMT:C	−06	−00	27
29	LRC	04	−04	18	89	BIM:BR	19	−04	14
30	HJEE	−21	21	−13	90	BIM:BRS	−07	−01	00
31	HJRT	−08	11	−03	93	BIM:C	−13	06	−15
32	HJEJ	−09	−09	−06	98	PR:C-C	−05	12	27
33	HJI	−07	−02	−19	100	PR:G	11	−05	05
34	HJGT	14	−02	19	103	PR:C-Mac	01	−10	−26
36	HJO	10	−08	14	105	SRM:I	−01	−06	−24
37	I-SS	−01	−16	−00	108	SRM:SS	12	−06	−14
38	CTRP	−08	03	30	109	SRM:CD	01	−17	−14
43	CAPT	−08	06	03	110	SRM:TD	02	08	36
44	CATO	51	−08	18	111	SRM:SPP	17	06	−22
45	CATOPT	−46	10	−19	112	SRM:T	−24	−00	−05
46	CAO	−07	−09	00	113	SRM:O	−00	00	−02
47	CRBPL	29	19	−10	114	AR:OPR	23	−34	24
48	CKE	**−58**	20	−05	122	PH:NOC	04	−11	03
49	HDKE	−18	23	−08	123	PH:LOC	19	−04	−11
52	6WKE	22	−12	−03	124	PH:CTOC	−02	−05	14
53	OKE	05	−22	15	125	PH:AT	−08	20	−08
54	KE5S	23	17	−01	127	PH:RSR	−26	06	−05
55	KE5O	−07	83	30	128	PH:O	−01	08	03
57	KE5D	00	**−87**	−28	134	SL	38	−28	30
58	KEO	−09	−06	−01	136	APL	**57**	−09	20
59	G16S	14	13	−02	139	CL	30	−30	36
60	G16O	03	04	−05	140	NCL	−07	15	−31

TABLE 6.2—Continued

PRINCIPAL COMPONENT LOADING MATRIX FOR 98 VARIABLES FOR GRADE TWO (*)—Continued

Variable No.	Abbreviation	C_1	C_2	C_3	Variable No.	Abbreviation	C_1	C_2	C_3
141	CCL	−30	24	−19	157	CSLOTE	**59**	24	−35
142	NBCL	15	−04	12	158	CHNSOL	00	01	−03
145	CL:RR	14	−14	12	159	CNHSOL	−53	−23	35
147	CL:CP	−12	14	−09	160	PCSOL	**66**	19	**−36**
153	P/C	−29	10	−22	Variability explained (%)		6.53	5.74	3.72
154	AF:AU	−19	05	−22					
155	AF:AH	**−62**	−25	30					
156	AF:AE	**67**	23	−24					

(*) Decimal points omitted.

TABLE 6.3

PRINCIPAL COMPONENT LOADING MATRIX FOR 114 VARIABLES FOR GRADE THREE (*)

Variable No.	Abbreviation	C_1	C_2	C_3	Variable No.	Abbreviation	C_1	C_2	C_3
2	U/R	54	−30	22	33	HJI	−06	00	24
3	C:ES	39	37	07	34	HJGT	10	−17	−09
7	TASU	−13	13	−01	37	I-SS	−12	−05	00
8	Age	44	23	20	38	CTRP	−09	01	−16
9	Boys	19	06	06	39	RRTO	**73**	01	−21
13	I/Q	−54	−22	−22	40	RRRT	05	24	−15
15	S-EL	21	33	00	41	RRTORT	**−63**	01	26
17	LOE	**63**	−04	41	42	RRO	−29	−26	06
18	TTBU	06	−02	−12	44	CATO	**56**	−03	−17
19	TTBTC	−04	−04	22	45	CATOPT	−54	09	12
20	TTUM	05	−00	−31	46	CAO	−08	−14	11
21	TTMTC	02	10	03	47	CRBPL	21	09	−00
22	TTO	−10	−11	17	48	CKE	−57	30	−06
23	PMTT	−02	−04	11	49	HDKE	−13	02	−21
24	LATT	25	19	−26	54	KE5S	00	02	22
25	RTT	01	02	07	56	KE5N	11	**85**	12
26	PMRTT	−18	−08	−00	57	KE5D	−10	**−83**	−21
27	OTT	06	−08	16	59	G16S	04	05	−03
28	CCTT	−13	−03	12	61	G16N	03	**74**	10
29	LRC	−09	−01	31	62	G16D	−03	**−73**	−11
30	HJEE	−07	20	−11	64	CO:SC	21	13	−19
31	HJRT	−08	17	−15	66	CO:J	−17	−01	04

TABLE 6.3—Continued

PRINCIPAL COMPONENT LOADING MATRIX FOR 114 VARIABLES FOR GRADE THREE (*)—Continued

Variable No.	Abbreviation	C_1	C_2	C_3	Variable No.	Abbreviation	C_1	C_2	C_3
67	CO:GG	−18	−13	02	119	AR:I	29	−30	−38
69	CO:O	01	−00	16	120	H:AN	−43	14	**45**
70	TPR:U	17	−18	20	121	H:EC	30	24	−21
71	TPR:GL	05	09	−14	122	PH:NOC	05	−00	19
72	TPR:II	09	00	−08	123	PH:LOC	16	−10	00
73	TPR:V	−22	04	02	124	PH:CTOC	−11	−20	−01
74	TPR:O	−02	−07	07	125	PH:AT	−11	32	00
76	G:TO	39	−12	−23	127	PH:RSR	−09	04	−17
77	G:C	−42	12	22	128	PH:O	05	10	04
79	CG:RT	17	07	33	129	TMTDHN	06	−10	03
80	CG:DT	03	09	00	130	SRTDHN	−18	03	13
81	CG:AT	00	03	00	131	TODHN	37	−19	−26
82	CG:AbT	−02	11	−30	132	TOTDHN	−36	20	19
83	CG:C	−15	−20	05	134	SL	37	−25	02
84	CG:O	08	−00	−17	135	SLE	−09	49	06
85	TMT:R	05	−08	18	138	B/P	24	09	41
86	TMT:D	−01	−06	12	139	CL	31	−38	−14
87	TMT:A	11	05	09	140	NCL	−20	26	13
88	TMT:C	−08	04	−25	141	CCL	−22	23	06
89	BIM:BR	19	−07	02	142	NBCL	19	−03	−02
90	BIM:BRS	−05	−01	02	145	CL:RR	18	07	−14
93	BIM:C	−15	11	−03	147	CL:CP	−18	−07	16
95	BIM:O	−03	−04	−06	149	LS:PTL	−30	56	− 2
98	PR:C-C	−15	−03	23	150	LS:CT	30	−33	11
104	PR:O	08	02	−18	151	LS:S	−16	−28	09
105	SRM:I	−10	−19	14	153	P/C	−29	05	−06
106	SRM:PM	−07	−02	13	155	AF:AH	**−55**	−19	−29
108	SRM:SS	09	−05	02	156	AF:AE	**56**	21	30
110	SRM:TD	−04	18	−11	157	CSLOTE	44	09	30
111	SRM:SPP	12	−04	00	158	CHNSOL	−13	02	13
112	SRM:T	00	−00	−09	159	CNHSOL	−29	−11	−41
113	SRM:O	−01	00	10	160	PCSOL	45	06	38
114	AR:OPR	26	−17	04					
115	AR:P	−18	−27	**60**	Variability explained (%)		6.70	5.73	3.72
116	AR:S	24	73	**−52**					
117	AR:RC	−15	−60	−03	(*) Decimal points omitted.				

TABLE 6.4

PRINCIPAL COMPONENT LOADING MATRIX FOR 110 VARIABLES FOR GRADE SIX (*)

Variable No.	Abbreviation	C_1	C_2	C_3	Variable No.	Abbreviation	C_1	C_2	C_3
2	U/R	**68**	−20	−15	66	CO:J	−17	09	11
3	C:ES	40	25	09	67	CO:GG	−20	−17	22
6	PTT	−19	12	03	68	CO:NG	−09	24	04
7	TASU	−34	02	03	69	CO:O	−10	01	−10
8	Age	45	19	−23	70	TPR:U	28	−14	04
9	Boys	02	02	00	71	TPR:GL	−05	19	10
10	WMWR	−52	−30	20	72	TPR:II	−02	14	08
15	S-EL	16	27	−01	73	TPR:V	−26	−05	−16
17	LOE	**63**	36	−06	74	TPR:O	−04	−06	−04
18	TTBU	−03	−06	00	75	G:T	06	−05	**53**
19	TTBTC	09	−08	−06	76	G:TO	42	21	31
20	TTUM	04	−11	−05	77	G:C	−40	−12	−65
21	TTMTC	−07	11	08	79	CG:RT	05	−07	33
22	TTO	−00	08	−02	80	CG:DT	19	−26	−11
23	PMTT	10	01	−02	81	CG:AT	17	59	28
24	LATT	−02	−11	−10	82	CG:AbT	−05	−07	12
25	RTT	−10	07	04	83	CG:C	−32	−25	−41
26	PMRTT	02	01	07	89	BIM:BR	38	−05	03
28	CCTT	−09	05	−08	90	BIM:BRS	−04	−02	11
29	LRC	−02	25	26	93	BIM:C	−30	−01	−19
30	HJEE	−13	08	08	95	BIM:O	−03	03	−01
31	HJRT	−30	14	−09	97	PR:HM	01	−00	03
33	HJI	27	−03	−06	98	PR:C-C	−06	07	−20
34	HJGT	−04	−02	15	100	PR:G	16	−04	04
36	HJO	−01	−17	−15	102	PR:Mac	−07	12	13
37	I-SS	−18	18	−00	104	PR:O	−03	−08	00
38	CTRP	14	12	−26	105	SRM:I	−33	−13	13
43	CAPT	00	11	09	108	SRM:SS	18	−05	−07
44	CATO	59	−14	17	110	SRM:TD	08	04	−10
45	CATOPT	−61	13	−20	112	SRM:T	−06	18	02
47	CRBPL	14	16	−16	113	SRM:O	14	02	−11
48	CKE	**−66**	20	03	114	AR:OPR	23	−03	15
49	HDKE	−12	22	−30	122	PH:NOC	04	−02	−01
53	OKE	09	−19	41	123	PH:LOC	10	−12	−04
54	KE5S	12	04	−02	124	PH:CTOC	11	09	−15
56	KE5N	−18	**81**	−03	125	PH:AT	−21	18	07
57	KE5D	10	**−76**	−04	126	PH:RSO	−16	14	15
58	KEO	01	−10	**60**	127	PH:RSR	−16	−10	14
59	G16S	07	20	19	128	PH:O	−00	−06	−03
61	G16N	−12	62	−05	129	TMTDHN	21	−07	00
62	G16D	04	**−68**	−01	130	SRTDHN	−26	07	07
63	G1O	12	−03	−07	131	TODHN	30	−03	41
64	CO:SC	30	−12	−15	133	OMDHN	−26	03	**−46**

TABLE 6.4—Continued

PRINCIPAL COMPONENT LOADING MATRIX FOR 110 VARIABLES FOR GRADE SIX (*)—Continued

Variable No.	Abbreviation	C_1	C_2	C_3	Variable No.	Abbreviation	C_1	C_2	C_3
134	SL	48	−09	−25	152	LS:O	−12	−36	−18
135	SLE	−41	14	−27	153	P/C	−32	04	−05
136	APL	59	−02	−10	154	AF:AU	−20	−07	−14
137	BSL	−55	45	08	155	AF:AH	−47	−35	30
138	B/P	30	29	19	156	AF:AE	54	38	−25
139	CL	47	−19	−17	157	CSLOTE	49	34	−12
140	NCL	−28	30	13	158	CHNSOL	−07	07	11
141	CCL	−31	−08	08	159	CNHSOL	−37	−37	01
142	NBCL	38	11	−18	160	PCSOL	53	38	−14
143	CLR	−25	09	06					
145	CL:RR	12	−14	16	Variability				
147	CL:CP	03	01	−23	explained (%)		7.71	5.37	3.68
149	LS:PTL	−30	**67**	05					
150	LS:CT	30	−27	23					
151	LS:S	17	−07	−20					

(*) Decimal points omitted.

The resulting tables were examined in order to identify variables having high loadings. It was found that the first three components having the highest percent of variance could be interpreted more meaningfully than the rest of the components, and these are shown in Tables 6.1, 6.2, 6.3 and 6.4 which present the variables identified in the first, second and third principal component analyses, respectively. Variables with .3 loadings and more were selected from each of the first three components and used as independent variables in separate regression analyses by grade with one dependent variable. These were in each case regressed on paragraph meaning score. The underlined coefficients indicate the variables used for further analysis. Description of the regression analyses will be presented in the next section. The following paragraphs briefly state the substantive nature of the components of each grade.

Grade One

The first component in grade one $(C_1)_1$ accounted for approximately six percent of the total variability of all 111 variables and was the most important component for that grade. The highest loading on this component occurred in Variable 17, pupils speak language other than English, which had a positive loading of .75. This variable, in conjunction with Variable 156, average community family attended elementary, with a positive loading of .69, defined the factor for this component and may therefore be referred to as *Linguistic Development.* Variable 155, average community family attended high school, provided a negative loading of .65. This clustering of variables was the major contributing factor for reading achievement in grade one in component one.

The second component in grade one $(C_2)_1$ accounted for 5.14 percent of the total variation in that grade and was called *Entrance Age.* The variables with "sufficient" coefficients were: Variable 56, kindergarten entrance age: five years old by November 30, with a positive loading of .76; and Variable 62, grade one entrance age: six years old by December 30, with a positive loading of .68. The negative variable that produced a high loading in the component was: Variable 57, kindergarten entrance age: five years old by December 31, with a negative loading of .75. A considerably high loading was produced by Variable 137, number of books in school library, with a positive loading of .65.

The third component in grade one $(C_3)_1$ accounted for 4.15 percent of the total variation in grade one and was called *Grouping Procedures* or *Classroom Opportunity.* The variable with the highest positive loading of .47 was Variable 76, grouping determined by teacher observation only. The other variables that produced negative loadings and cluster in this factor were Variable 81, grouping determined by combination of tests, with a negative loading of .53; Variable 45, pupil's ability assessed by teacher observation and published test, with a negative loading of .47; and Variable 147, classroom library used for combination of purposes, with a negative loading of .47.

Grade Two

The first component in grade two $(C_1)_2$ accounted for 6.53 percent of the total variation of the 98 variables studied in that grade. The largest weights in this factor appeared for Variable 17, pupils speak language other than English, with a positive loading of .73, and Variable 156, average community family attended elementary, with a positive loading of .67. It is of interest to note here that component one had the same structure as that of grade one. In addition, there was Variable 160, percentage of class speaking other language at home, with a positive loading of .66. This factor was called *Linguistic Environment.*

In the case of the second component in grade two $(C_2)_2$, the largest weights, according to sign, clustered in Variable 55, kindergarten entrance age: five years old by October 30, with a positive loading of .83; and Variable 61, grade one entrance age: six years old by November 30, with a positive loading of .79. In the same factor negative loadings were produced by Variable 57, kindergarten entrance age: five years old by December 31, with a negative loading of .87; and Variable 62, grade one entrance age: six years old by December 31, with a negative loading of .81. It is of interest to note here that the same patterns appeared in C_2 of grade one; that is, December 31 entrance into kindergarten and grade one produced negative loadings while other dates produced positive loadings for this factor. This component was called *Entrance Age.*

The third component $(C_3)_2$ with a variability of 3.72 percent for grade two was called *Classroom Organization.* The highest loading that occurred in this component was on Variable 64, classroom organization: self-contained, with a positive loading of .48. Three other variables which clustered in this component were Variables 110, 139 and 160. Variable 110, supplementary reading materials used: teacher-made duplicated materials and Variable 139, classroom library, both showed a positive

loading of .36. Variable 160, percentage of class speaking other language at home, had a negative loading on this component.

Grade Three

Component one in grade three $(C_1)_3$ was mostly loaded on by Variable 39, reading readiness assessed by teacher observation, with a positive loading of .73. It is of interest to note that reading readiness assessed by teacher observation and readiness tests which is Variable 41, provided a negative loading of .63, while Variable 17, pupils speak language other than English, appeared again, providing a positive loading of .63. This component which accounted for 6.70 percent of the total variation of the 114 variables of grade three was called *Teacher-Home Factor.*

The second component in grade three $(C_2)_3$, a *Developmental* component, accounted for 5.73 percent of the total variation for grade three. The important variables in this component could be clustered according to sign: Variable 56, kindergarten entrance age: five years by November 30, with a positive loading of .85; Variable 61, grade one entrance age: six years old by November 30, with a positive loading of .74; Variable 57, kindergarten entrance age: five years old by December 31, with a negative loading of .83; and Variable 62, grade one entrance age: six years old by December 31, with a negative loading of .73. Variable 116, major assistance received from supervisor, produced a positive loading of .73.

This third component in grade three $(C_3)_3$ was defined in terms of the following variables: Variable 115, major assistance received from principal, with a positive loading of .60; Variable 116, major assistance received from supervisor, with a negative loading of .52; and Variable 120, help available as need felt, with a positive loading of .45. This component was called *Help Available,* and accounted for 3.72 percent of the total variability of grade three.

Grade Six

The first component in grade six $(C_1)_6$ was defined from the weights of the following variables: Variable 2, U/R classification, with a positive loading of .68; Variable 48, kindergarten experience of class, with a negative loading of .66; and Variable 17, pupils speak language other than English, with a positive loading of .63. It is of interest to note that similar patterns of the component *Language Development* emerged in all four grades. Another contributing factor in grade six was U/R classification which contributed greatly to the reading achievement of classes. This component, an *Environmental* component accounted for 7.71 percent of the total variance of the 110 variables for grade six.

The largest weights for component two in grade six $(C_2)_6$ appeared in Variable 56, kindergarten entrance age: five years old by November 30, with a positive loading of .81; Variable 57, kindergarten entrance age: five years old by December 31, with a negative loading of .76; and Variable 62, grade one entrance age: six years old by December 31, with a negative loading of .68. It is of interest to note that component structures similar to those of component two in grades one, two and three, emerged. This component was defined as *Entrance Age* and accounted for 5.37 percent of the total variability for grade six.

The weights for the third component in grade six $(C_3)_6$ were as follows: Variable 77, grouping determined by combination of methods, with a negative loading of .65; Variable 75, grouping determined by testing only, with a positive loading of .53; and Variable 58, kindergarten entrance at some other age, with a positive loading of .60. According to the weights of the variables, the third component, a *Grouping* component, accounted for 3.68 percent of the total variability of grade six.

TABLE 6.5

SUMMARY TABLE OF PRINCIPAL COMPONENTS EXTRACTED FOR EACH GRADE

Grade One	Name of Component	Percent of Total Variability
$(C_1)1$	Linguistic Development	6.61%
$(C_2)1$	Entrance Age	5.14
$(C_3)1$	Grouping Procedures or Classroom Opportunity	4.15
Grade Two		
$(C_1)2$	Linguistic Environment or Language Development	6.53
$(C_2)2$	Entrance Age	5.74
$(C_3)2$	Classroom Interaction or Classroom Organization	3.72
Grade Three		
$(C_1)3$	Readiness or Teacher-Home Factor	6.70
$(C_2)3$	Developmental	5.73
$(C_3)3$	Help Available, Administrative Assistance or Scholastic Aid	3.72
Grade Six		
$(C_1)6$	Environmental	7.71
$(C_2)6$	Entrance Age or Pre-School Academic Orientation	5.37
$(C_3)6$	Scholastic Opportunity or Grouping	3.68

A listing of each of the three components for grades one, two, three and six, and the percentage of total variability indicated for each, appears in Table 6.5.

Multiple Regression Analysis

The regression analysis technique was used to measure the "unique" association between achievement and the other variables. Since each of the independent variables was of differing significance or importance to the predicted variable (criterion), it would have been difficult to give equal consideration to each of them in deriving an estimate of the predicted variable. The multiple regression analysis technique has the advantage of being able to look simultaneously at the various effects that several variables have on the one variable being explained, that is, achievement in reading. In summary, we can say that this tool can explain variation in the predicted variable, by variations in the independent variable; *e.g.*, teachers' background, etc.

For each grade three multiple regression analyses were performed, in every case the dependent variable was reading achievement as measured by Paragraph Meaning on SRAT. The independent variables were those variables loading highly on each of the three principal components discussed earlier.

TABLE 6.6

SIGNIFICANT EFFECTS FOUND IN MULTIPLE REGRESSION ANALYSIS ON READING ACHIEVEMENT OF VARIABLES IDENTIFIED IN GRADE ONE, BY EACH OF THE THREE PRINCIPAL COMPONENTS (SIGNIFICANT AT P.< .01)

Principal Components	R	Variable Number	Description	Significant Regression Coefficient (standardized)
First (n = 32)	.80	8	Age of pupils	.42
		13	IQ of pupils	.74
		93	Basic instruction material: combination of materials	−.17
		155	Average community family attended high school	.43
Second (n = 23)	.49	15	Socio-economic level of family	.22
		61	Grade one entrance age: Six years old by Nov. 30	.62
		134	Existence of central school library	.21
		153	Number of pupils per class	.16
Third (n = 24)	.61NS			

n = number of variables.

TABLE 6.7

SIGNIFICANT EFFECTS FOUND IN MULTIPLE REGRESSION ANALYSIS ON READING ACHIEVEMENT OF VARIABLES IDENTIFIED IN GRADE TWO, BY EACH OF THE THREE PRINCIPAL COMPONENTS (SIGNIFICANT AT P< .01)

Principal Components	R	Variable Number	Description	Significant Regression Coefficient (standardized)
First (n = 26)	.83	2	Urban and rural classification	.12
		3	Class: economic status of area based on income	.08
		8	Age of pupils	.28
		13	IQ of pupils	.82
		47	Pupils reported as reading below potential level	−.09
		48	Kindergarten experience of class	.10
		72	Teacher-pupil relationship: Individualized instruction	.12
		112	Supplementary reading material used: trade books	−.08
		153	Number of pupils per class	.09
		160	Percentage of class speaking other language at home	.04

TABLE 6.7 –Continued

SIGNIFICANT EFFECTS FOUND IN MULTIPLE REGRESSION ANALYSIS ON READING ACHIEVEMENT OF VARIABLES IDENTIFIED IN GRADE TWO, BY EACH OF THE THREE PRINCIPAL COMPONENTS (SIGNIFICANT AT P< .01) —Continued

Principal Components	R	Variable Number	Description	Significant Regression Coefficient (standarized)
Second (n = 23)	.86	8	Age of pupils	.28
		13	IQ of pupils	.98
		155	Average community family attended high school	.56
		156	Average community family attended elementary school	.55
Third (n = 23)	.53	38	Class time per week for reading program	−.13
		153	Number of pupils per class	.14

n = number of variables.

TABLE 6.8

SIGNIFICANT EFFECTS FOUND IN MULTIPLE REGRESSION ANALYSIS ON READING ACHIEVEMENT OF VARIABLES IDENTIFIED IN GRADE THREE, BY EACH OF THE THREE PRINCIPAL COMPONENTS (SIGNIFICANT AT P< .01)

Principal Components	R	Variable Number	Description	Significant Regression Coefficient (standardized)
First (n = 22)	.86	2	Urban and rural classification	−.20
		8	Age of pupils	.34
		13	IQ of pupils	.70
		44	Pupil ability assessed by teacher observation	−.35
		47	Pupils reported as reading below potential level	−.20
		114	Received assistance in organizing and planning reading activities	−.16
		157	Pupils speak language other than English at home	−.26
Second (n = 17)	.83	8	Age of pupils	.23
		13	IQ of pupils	.95
Third (n = 19)	.82	8	Age of pupils	.15
		13	IQ of pupils	.85
		70	Teacher-pupil relationship unstructured (no grouping)	−.14

n = number of variables.

TABLE 6.9

SIGNIFICANT EFFECTS FOUND IN MULTIPLE REGRESSION ANALYSIS ON READING ACHIEVEMENT OF VARIABLES IDENTIFIED IN GRADE SIX, BY EACH OF THE THREE PRINCIPAL COMPONENTS (SIGNIFICANT AT P< .01)

Principal Components	R	Variable Number	Description	Significant Regression Coefficient (standardized)
First (n = 28)	.60	3	Class: economic status of area based on income	−.14
		8	Age of pupils	−.57
		125	Help for pupils from school system's adjustment teacher	.17
Second (n = 21)	.61NS			
Third (n = 9)	.73	2	Urban and rural classification	.02

n = number of variables.

The multiple regression analyses revealed 22 variables for grades one, two, three and six, significantly related to the dependent variable, reading achievement (paragraph meaning score). The results shown in Tables 6.6, 6.7, 6.8 and 6.9, suggest that these 22 variables explain slightly more than two-thirds of the variance in reading achievement. Variables showing a significant effect on reading achievement for all four grades are the following variables: 8, 13, 7 and 4 for each of grades one, two, three and six, respectively.

Grade One

Variables found to contribute significantly ($p < .01$) to reading achievement in grade one in Manitoba were: age of pupils; IQ of pupils; grade one entrance age: six years old by November 30; average community family attended high school; age of pupils; SEL of family; existence of central school library; and number of pupils per class. Variable 93, basic instructional material: combination of materials, contributed negatively to reading achievement in grade one.

With reference to Variable 153, number of pupils per class, the specific effects of class size on reading achievement were not discovered in the regression analysis. The regression for this variable was curvilinear and had not the linearity of a typical regression. The specific effects of this variable, however, revealed by the analysis of variance are discussed subsequently in chapter eight.

Grade Two

Variables found to contribute significant ($p. < .01$) to reading achievement in grade two were: U/R classification; class: economic status of area based on income; age of pupils; IQ of pupils; kindergarten experience

of class: teacher-pupil relationship: individualized instruction; number of pupils per class; percentage of class speaking other language at home; average community family attended high school; and average community family attended elementary school. Contributing negatively to reading achievement in grade two were: pupils reported as reading below potential level; supplementary reading material used: trade books; and class time per week for reading program.

Grade Three

Variables found to contribute significantly ($p. < .01$) to reading achievement in grade three were age of pupils and IQ of pupils. Contributing negatively to reading achievement in grade three were: U/R classification; pupil ability assessed by teacher observation; pupils reported as reading below potential level; received assistance in organizing and planning reading activities; pupils speak language other than English at home; and teacher-pupil relationship unstructured (no grouping).

Grade Six

Variables found to contribute significantly ($p. < .01$) to reading achievement in grade six were: U/R classification and help for pupils from school system's adjustment teacher. Contributing negatively to reading achievement in grade six were: class: economic status of area based on income, and age of pupils. It appears that the younger the pupil is the better the achievement.

In grades one, two and three the major contributing variable was found to be IQ of pupils. In grade six the major contributing factors were class: economic status of area based on income, and U/R classification.

It should be noted that the results show the relationships between these variables and reading achievement as contributory and do not demonstrate, nor seek to demonstrate these relationships as causal.

A detailed analysis of the reading achievement scores as affected by these variables is presented in chapters seven and eight of this report.

CHAPTER 7

THE RELATION OF THE SOCIAL—FAMILY ENVIRONMENT TO READING ACHIEVEMENT

INTRODUCTION

Analysis of Variance for Specific Factors

This study was designed to examine the effect of factors which contribute, positively or negatively, to the reading achievement of pupils in grades one, two, three and six in Manitoba elementary schools. In pursuit of this objective the study brought into play 21 factors and, through analyses of variance, examined some of the effects of certain selected variables on reading achievement scores.

Analysis of Variance Procedures

Sixteen factorial analyses of variance of achievement scores were undertaken in the study.

One of these analyses of variance was undertaken with factors (classifications) according to U/R, grade, sex, SEL and language*. IQ was not included in this analysis of variance. An additional analysis of variance was undertaken with reading achievement scores classified according to IQ level, U/R, sex, SEL and language**. Grade was not included in this analysis of variance. Other analyses of variance were undertaken with reading achievement scores classified according to questionnaire response data plus the major factors, *viz.*: grade, U/R, sex, SEL, IQ and language.

Prior to undertaking these analyses of variance, some operational decisions had to be made for computer programming purposes. For example, information with respect to SEL, was collected by teachers for data sheet reporting according to seven levels. These seven levels (see Appendix I for original full descriptions on teachers' instruction sheet) were collapsed to three major levels, as follows:

(1) Professional.....Level one —Upper
(2) Managerial.....Level one —Upper
(3) Employees.....Level two —Middle
(4) Fishermen and Farmers.....Level three—Lower
(5) Proprietor Owners.....Level three—Lower
(6) Employees (excluding 3 and 4)....Level three—Lower
(7) Welfare Cases.....Level three—Lower

The reason for collapsing these seven levels into three major levels was that, in using this factor in combination with others such as U/R, some cells contained no scores (*e.g.*, the combination of fisherman and urban was not possible). Similarly, factor 17, pupils speak language other than English,

*In this analysis the language levels were four, *i.e.*, English, Bilingual French (English-French), Bilingual German (English-German), and Bilingual "Other" (English and Ukrainian, English and Polish, English and Italian, English and Indian or English and Eskimo).

**In this analysis the language levels were two, *i.e.*, Monolingual and Bilingual.

had to be collapsed from its original seven levels† to the groups of English only, Bilingual/French, Bilingual/German and Bilingual/"Other".

The analyses of variance for some factors were not based upon the pupil as a unit but upon the class; nevertheless, the within class error was used as the error term. The writer recognizes that it is an approximation and the errors associated with these factors might have been under estimated, such as class-size, percent of pupils speaking another language, etc.

Major Factors

The first of the two analyses of variance to be discussed is that of the reading achievement scores of pupils classified according to the major factors *viz.*: U/R, grade, sex, SEL and language spoken by pupils. It should be noted that no data derived from the teacher responses to the questionnaire were included in the analysis of the major factors. The language spoken by pupils factor introduced into this analysis of variance was derived from direct questioning of pupils by teachers with respect to the language(s) these pupils spoke and was independent of questions 39 and 40 which will be discussed subsequently.

In the second analysis of variance, IQ classification was replaced by grade as a factor. The data for the language factor included in the IQ analysis of variance were derived from the pupil data sheet but considered only two levels, bilingual and monolingual, and not four levels as in the other major factor analyses.

TABLE 7.1

SUMMARY TABLE FOR SIGNIFICANT MAIN EFFECTS AND INTERACTIONS REVEALED IN THE ANALYSES OF VARIANCE FOR THE MAJOR VARIABLES

	Urban/ Rural	Grade	Sex	Socio-Economic Level	I.Q.	Language (main, 4-level variable)	Language (bilingual/ mono-lingual, 2-level variable)
Urban/Rural	(**)						
Grade	**	(**)					
Sex	NS	NS	(**)				
Socio-Economic Level	**	**	*	(**)			
I.Q.	NS	/	*	*	(**)		
Language (main, 4-level variable)	**	**	*	NS	/	(**)	
Language (bilingual/mono-lingual, 2-level variable)	NS	/	NS	NS	**	/	(**)

LEGEND:
** - F value significant at the .02 level.
* - F value significant at the .05 level.
NS - Not significant.
/ - Not analyzed.
( ) - Main effects — read diagonally.

†Seven levels were used by teachers in classifying pupils on the pupil data sheet.

Table 7.1 shows the significant effects of the major factors and their interactions: U/R, grade, sex, SEL, IQ and language. A double asterisk (**) denotes significance at the .01 level. A single asterisk (*) denotes significance at the .05 level. NS denotes *not significant*. Tables 1 to 16 in Appendix III include summaries of the Analysis of Variance for the factors discussed in this chapter and in Chapter 8.

Table 7.1 presents the summary of analysis of variance on reading achievement scores. For a more detailed summary of the analysis of variance, the reader is directed to Appendix III. All main effects of this analysis were significant at the .01 level, *i.e.*, U/R, grade, sex, SEL, IQ, language (four levels), and language (two levels). These will be discussed in a later section. U/R interacted significantly with grade, SEL and language (four levels), while the interactions between U/R and sex, and U/R and IQ, were not significant. When the language factor was classified as monolingual or bilingual, it did not produce any significant interaction with U/R. The grade factor produced a significant interaction with SEL and language (four levels). The interaction grade and sex was not significant. The sex factor produced significant interactions (.05 level) with SEL, IQ, and language (four levels). The SEL factor produced a significant interaction (.05 level) with IQ. SEL and the language factor, classified in four levels or in two levels, did not produce any significant interaction. The IQ factor produced a significant interaction with language when it was classified according to two levels.

Of the higher order interactions tested only U/R × Grade × SEL and U/R × Grade × Sex were significant at the .01 and .05 level, respectively.†

In order to test for differences in reading achievement due to levels of questions 2, 7, 10, 11, 15, 20, 21, 22, 31, 37, 38, 39 and 40 of the questionnaire, analyses of variance of the reading achievement scores of pupils of the sample were undertaken for classifications according to each of these questions plus the major factors *viz.*: U/R, grade, sex, and SEL.

See Table 7.2 on Page 118.

Table 7.2 presents a summary of the analyses of variance for the other factors and their interactions with each of the major factors.

The summary tables of each analysis of variance can be found in Appendix III. A double asterisk (**) denotes significance at the .01 level. A single asterisk (*) denotes significance at the .05 level. NS denotes *not significant*. Actual F values are shown for all interactions in the analyses of variance tables in Appendix III. The means of these analyses are presented in tables included in the subsequent discussion.

The following presentation of results, therefore, is divided into two main categories each with sub-categories. The first of the main categories is called the *Social-Family Environment* and includes the nature and location of the pupil's home environment (*i.e.*, socio-economic and educational-cultural status of the pupil's family: language(s) spoken and/or heard by pupil; U/R or SEL of pupil's home and/or school); Sex and IQ.

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†Three-way tables were used in the present report occasionaliy for the purpose of clarifying certain points.

TABLE 7.2

SIGNIFICANT MAIN EFFECTS AND INTERACTIONS REVEALED IN THE ANALYSES OF VARIANCE

	No. 2	No. 7	No. 10	No. 11	No. 15	No. 20	No. 21	No. 22	No. 31	No. 37	No. 38	No. 39	No. 40	I.Q.
Main Effects	**	**	**	**	**	**	NS	**	NS	**	**	**	**	**
Urban/Rural	NS	**	**	**	/	**	NS	**	NS	**	**	NS	**	NS
Grade	**	**	**	**	/	**	*	**	**	**	**	**	**	/
U/R × Grade	**	**	**	**	/	**	NS	**	**	**	NS	**	**	/
Sex	**	NS	NS	*	NS	**	NS	NS	NS	*	**	*	NS	*
U/R × Sex	NS	**	NS	NS	/	NS	NS	**	NS	*	NS	NS	*	NS
Grade × Sex	*	NS	**	**	/	**	*	NS	NS	*	**	NS	NS	/
U/R × Grade × Sex	**	NS	**	**	/	NS	NS	**	NS	NS	NS	**	NS	/
Socio-economic level	NS	**	NS	**	**	**	*	NS	NS	**	*	*	NS	*
U/R × SEL	NS	NS	NS	NS	/	NS	NS	**	**	NS	*	NS	**	NS
Grade × SEL	*	**	NS	NS	/	**	NS	**	NS	**	NS	NS	**	/
U/R × Grade × SEL	NS	NS	NS	**	/	NS	NS	**	NS	*	NS	**	**	/
Sex × SEL	NS	**	NS	*	NS	*	NS	NS	NS	NS	NS	NS	NS	NS
U/R × Sex × SEL	*	NS	NS	NS	/	NS	NS	NS	**	NS	NS	**	NS	NS
Grade × Sex × SEL	NS	NS	NS	**	/	NS	NS	NS	NS	NS	NS	NS	NS	/
U/R × Grade × Sex × SEL	NS	NS	NS	NS	/	NS	NS	NS	NS	NS	NS	**	NS	/
Language (Monolingual-Bilingual)	/	/	/	/	/	/	/	/	/	/	/	/	/	**
U/R × Language	/	/	/	/	/	/	/	/	/	/	/	/	/	*
SEL × Language	/	/	/	/	/	/	/	/	/	/	/	/	/	NS
U/R × SEL × Language	/	/	/	/	/	/	/	/	/	/	/	/	/	NS
Sex × SEL × Language	/	/	/	/	/	/	/	/	/	/	/	/	/	NS
Sex × SEL × Language × U/R	/	/	/	/	/	/	/	/	/	/	/	/	/	NS

LEGEND:

** - F value significant at the .01 level.

* - F value significant at the .05 level.

NS - Not significant.

/ - Not analyzed.

The second category is called *Learning Environment,* and includes the school's materials, the physical and organizational environment, the practices of teachers and the administrative assistance in reading instruction.

Language Background

The language factor included in the present discussion is based on statistics gained from direct questioning of pupils by their teachers with respect to the languages they spoke. Questions 39 and 40 of the questionnaire invited teachers to make generalized reports on the language background of their classes.

For the purpose of the analysis of variance, some language groups had to be collapsed into more inclusive groupings than originally planned. This was necessary because it was at times difficult to get a replication in a cell in the analysis where certain factors were brought together (*e.g.,* rural and Italian language). The four final categories set up for the analysis of variance were: (1) Monolingual, English; (2) Bilingual, English and French; (3) Bilingual, English and German; (4) Bilingual, English and "Other" (Ukrainian, Polish, Italian, Indian, Eskimo). Each pupil response was classified according to one of these four categories.

The following presentation of results is based on the analysis of variance of the reading achievement scores of pupils classified according to U/R, grade level, sex, SEL, and language in four levels as mentioned above. Table 1 in Appendix III presents a summary table of the analysis of variance of reading achievement scores classified according to U/R, grade, sex, SEL and language. The language main effect yielded an F value of 45.32 which was significant at the .01 level. Significant interactions were noted with U/R which produced an F value of 20.57 (.01 level), with grade which produced a significant F value at the .01 level, and with sex which produced a significant F value at the .05 level. Higher order significant interactions were noted with U/R × Grade × Lang(.01 level), and Grade × Sex × Lang (.05 level). The interaction of SEL and language was not significant. The difference of achievement scores, due to language, was similar for all SEL. If a pupil who spoke only English achieved better in reading than a pupil who spoke English and French, this difference had nothing to do with the SEL which he was in. The relevant means of this analysis are presented in the following section. Conclusions drawn about SEL and language main effects apply to all SEL classifications and language levels.

TABLE 7.3

MEAN READING ACHIEVEMENT SCORES OF PUPILS CLASSIFIED ACCORDING TO LANGUAGE

	Mean Achievement	S.E.
English	40.29	± .08
French	36.64	± .28
Other	39.22	± .26
German	39.45	± .25

Table 7.3* presents the mean achievement scores for pupils of the four language levels. Monolingual/English pupils had the higher mean achievement score of 40.29; Bilingual/German pupils scored next with 39.45; Bilingual/French pupils scored 36.64.

Fries described the process of learning to read as "the process of transfer from the auditory signs for language which the child has already learned to the new visual signs for the same signals" (1963, p. 263). Such a process is hardly as direct for the child who is learning to read a language which is not the same as the one he speaks. Indeed, the transfer from the auditory to visual may be hampered by lingual variation arising from actual bilingualism and/or use of dialects which are deviations from standard English usage (Warner, 1968, p. 8).

A study by Kittel supported the hypothesis that the language handicap of bilingual pupils decreased as they progressed (1963, p. 76). The study also suggested the possibility that a bilingual environment might be an asset to verbal proficiency in intermediate grades. Pupils from grades three, four and five from bilingual and monolingual environments were used for the test sample. The results showed: that pupils from bilingual environments, particularly girls, suffered a handicap in performance in the language section of the test in grade three; that the true potential language mental ability and the reading ability of pupils from a bilingual environment were not apparent in their performance on the mental maturity tests and on the reading tests administered in grade three; and that the deficiency in performance in reading and intelligence recorded for bilingual grade three pupils was significantly less effective when the parents' occupational class ratings were disregarded. The study also revealed that the children from a bilingual environment apparently had verbal IQ and potential reading abilities superior to those of the monolingual children, but those abilities were not apparent in test performance in grade three. However, the bilingual factor became an asset to test performance in grade five where the superiority of the bilingual group was apparent. Chronological age contributed to relatively greater changes in test performance where it represented periods of language experience.

Data of Tables 7.6 to 7.8 present the mean reading achievement scores of pupils classified according to the four language levels and U/R; grade and language levels; grade, language levels and U/R; sex and language levels; and grade, language levels and sex.

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*The standard errors (SE) for particular mean score calculations are shown in the tabular presentations but are not always included in the discussion of data. While they do not always appear as part of the discussion, they have been, however, an important guide to the interpretation of mean scores in the preparation and presentation of the discussion materials. The SE can be interpreted only in terms of the sample size, that is, a small SE indicates that the mean being used with that SE is drawn from a large sample and a large SE indicates the reverse. In other words, more confidence can be given to mean scores with smaller SE because it is known that these were selected from a larger sample.

TABLE 7.4

MEAN READING ACHIEVEMENT SCORES OF PUPILS CLASSIFIED ACCORDING TO URBAN/RURAL AND LANGUAGE

	Urban	S.E.	Rural	S.E.
English	40.98	± .11	39.59	± .11
French	39.13	± .46	34.15	± .35
Other	39.10	± .36	39.34	± .39
German	40.59	± .44	38.30	± .31

Table 7.3 data demonstrate that pupils who spoke only English (monolingual pupils) had higher mean reading achievement scores than pupils who spoke English and another language. In discussing Table 7.4, one can see that the differences between "urban" and "rural" are not the same for those pupils who are Monolingual/English; Bilingual/French; Bilingual/"Other"; and Bilingual/German. The largest difference between urban and rural occurred with those pupils who spoke English and French. The rural effect was more predominant with Bilingual/French pupils than with any other bilingual or monolingual pupil.

TABLE 7.5

MEAN READING ACHIEVEMENT SCORES OF PUPILS CLASSIFIED ACCORDING TO GRADE AND LANGUAGE

	English	S.E.	French	S.E.	Other	S.E.	German	S.E.
Grade 1	1.83	± .15	1.73	± .55	1.82	± .59	1.84	± .52
Grade 2	3.05	± .15	2.57	± .56	2.90	± .52	2.97	± .49
Grade 3	4.00	± .15	3.71	± .55	3.98	± .53	3.99	± .50
Grade 6	7.22	± .17	6.63	± .59	6.97	± .48	6.96	± .52

TABLE 7.6

MEAN READING ACHIEVEMENT SCORES OF PUPILS CLASSIFIED ACCORDING TO URBAN/RURAL, GRADE AND LANGUAGE

URBAN

	English	S.E.	French	S.E.	Other	S.E.	German	S.E.
Grade 1	1.86	± .21	1.68	± .97	1.74	± .77	1.78	± .97
Grade 2	3.11	± .22	2.77	± .84	2.96	± .67	3.05	± .84
Grade 3	4.08	± .22	4.06	± .96	3.99	± .71	4.14	± .82
Grade 6	7.32	± .23	7.13	± .96	6.93	± .72	7.25	± .90

RURAL

	English	S.E.	French	S.E.	Other	S.E.	German	S.E.
Grade 1	1.80	± .22	1.79	± .67	1.90	± .91	1.90	± .61
Grade 2	2.99	± .21	2.37	± .75	2.84	± .83	2.89	± .61
Grade 3	3.92	± .21	3.36	± .67	3.97	± .80	3.83	± .64
Grade 6	7.11	± .24	6.13	± .74	7.01	± .65	6.68	± .64

TABLE 7.7

MEAN READING ACHIEVEMENT SCORES OF PUPILS CLASSIFIED ACCORDING TO SEX AND LANGUAGE

	English	S.E.	French	S.E.	Other	S.E.	German	S.E.
Male	39.24	± .11	35.73	± .40	38.23	± .37	39.26	± .36
Female	41.33	± .11	37.56	± .39	40.21	± .38	39.63	± .36

TABLE 7.8

MEAN READING ACHIEVEMENT SCORES OF PUPILS CLASSIFIED ACCORDING TO GRADE, SEX AND LANGUAGE

MALE

	English	S.E.	French	S.E.	Other	S.E.	German	S.E.
Grade 1	1.76	± .21	1.64	± .81	1.76	± .78	1.85	± .74
Grade 2	2.95	± .21	2.47	± .80	2.75	± .73	3.02	± .66
Grade 3	3.87	± .22	3.65	± .77	3.73	± .74	4.02	± .72
Grade 6	7.10	± .23	6.51	± .82	7.04	± .69	6.80	± .73

FEMALE

	English	S.E.	French	S.E.	Other	S.E.	German	S.E.
Grade 1	1.90	± .22	1.82	± .76	1.87	± .89	1.83	± .73
Grade 2	3.15	± .22	2.67	± .78	3.06	± .74	2.92	± .73
Grade 3	4.13	± .22	3.77	± .78	4.22	± .76	3.96	± .70
Grade 6	7.34	± .24	6.75	± .84	6.91	± .67	7.12	± .74

Tables 7.5, 7.6, 7.7 and 7.8 set forth relationships of reading achievement scores when these are classified according to grade, language and other factors. Table 7.5 shows that in grades one, two and three, differences between Monolingual/English and Bilingual/German achievement scores were not great, but in grade one the pupils with German as a second language scored higher than their monolingual counterparts and higher than other bilingual groups. In grades two, three and six the monolingual pupils scored higher—in grade two, .08 higher; in grade three, .01 higher; and in grade six, .26 higher. In grades two and three Bilingual/German scores were higher than scores of Bilingual/French and Bilingual/"Other" levels. In grade six the Bilingual/"Other" level scored .01 higher than Bilingual/German and .34 higher than Bilingual/French.

The higher scores for Bilingual/German pupils over other levels in grade one were found in rural areas where scores were classified according to U/R and grade. This pattern is demonstrated in Table 7.6. In grade one urban, however, Monolingual/English pupils scored higher, but not higher than rural Bilingual/German. Scores of grade one Bilingual/French pupils were higher in the rural areas than in urban areas, but in all other grades the urban scores were higher. Both urban and rural Bilingual/French scored lower than all levels except for that of "Others" in certain grades (grade three urban, and grade six urban).

Mean reading achievement scores of females were higher than those of males in all four language levels. Data presented in Table 7.7 demonstrate, however, that males' higher scores and females' higher scores occurred in

different language levels. Monolingual/English, Bilingual/French and Bilingual/"Other" females scored higher by 1.09, 1.83 and 1.98 respectively, than the corresponding males. This direction of difference was not true for Bilingual/German pupils. The effect of sex was not manifested in Bilingual/German pupils. With mean achievement scores classified according to grade as well as sex and language, the pattern for higher scores for females was maintained as is demonstrated by data in Table 7.8, with the exception of grade six "Others", grade one Bilingual/German, grade two Bilingual/German, and grade three Bilingual/German. It may be seen from this table that the differences between Bilingual/German males and monolingual males—in favor of Bilingual/German males—were emphasized in grades one, two and three, but were not evident in grade six where English monolingual males scored higher. A similar phenomenon occurred with the language level of "Others". It is of interest to note in this data that, in general, while female monolingual scores were higher than all others female scores, (except in grade three "Others"), Bilingual/German males scored higher than Bilingual/German females in grades one, two and three.

In the present study it is perhaps difficult to understand why grade one Bilingual/German pupils scored higher than their monolingual counterparts. The findings that in some ethnic groups the male pupils achieved higher scores than their female counterparts lend support to the hypothesis that the difference between males and females is cultural. Further research would possibly provide some answers. Higher scores for Bilingual/German pupils than for other bilingual levels, generally, might be explained by the disposition of German-speaking settlements in Manitoba. Many rural German-speaking communities are Mennonite settlements. These communities tend to have a longer history of bilingualism than some other ethnic groups—urban or rural—and longer than German-speaking people living in urban areas. But as well as having this community and home environment support for two language competence, bilingual German pupils have often had the understanding and assistance of bilingual German-speaking teachers in these same communities. No doubt this teacher influence has also had its effects, and perhaps especially at the grade one level where the higher scores for Bilingual/German pupils show up in this study.

The following sections deal with the language background in the classroom, and second language at home. The information of these sections was carried from questions 39 and 40 of the questionnaire. These questions required teachers to make generalized reports on the language background of their class. With reference to question 39, the following question was posed to the teachers, "Which of the following statements best describe the language background of your class?" Alternatives were offered for the teacher. One was, "At home the children speak another language than English; two was, "At home the children hear but do not speak another language"; and three was, "At home the children neither hear nor speak another language". Approximately 48 percent of the teachers responded that at home the children neither hear nor speak another language. Table 2 in Appendix III contains the summary of analysis of variance performed with reference to question 39 and with reading achievement scores as the dependent variable classified according to grade level, U/R and SEL. The main effect yielded an F value of 163.30 which was significant at the .01 level. The interaction of question 39 and

U/R provided a non-significant effect. The interaction of this question on grade produced an F value of 13.31 which was significant (.01 level). Other significant interactions occurred with sex and SEL which yielded and F value of 5.90 (.05 level) and 3.66 (.05 level) for sex and SEL, respectively. Of the higher order interactions tested, the following were significant: U/R × Grade × Q39 (.01 level); U/R × Grade × Sex × Q39 (.01 level); U/R × Grade × SEL × Q39 (.01 level); U/R × Sex × SEL × Q39 (.01 level); and U/R × Grade × Sex × SEL × Q39 (.01 level); only the more meaningful interactions were discussed in this report.

With reference to question 40, the teachers were asked to respond to the question: "What percentage of your classroom students speak a second language at home?" The response "less than 10 percent" was marked by 46 percent of the teachers. Table 3 in Appendix III provides a summary of the analysis of variance of question 40 classified according to grade level, U/R and SEL. The dependent variable was reading achievement scores. Question 40 yielded an F value of 66.56 which was significant at the .01 level. Significant interactions at the .01 level were with U/R (F = 13.35) and with grade (F = 9.20). The interactions between sex and question 40 and SEL and question 40 were not significant. Referring to question 39, Table 7.9 presents the mean reading achievement scores of pupils classified

TABLE 7.9

MEAN READING ACHIEVEMENT SCORES OF PUPILS CLASSIFIED ACCORDING TO THE LANGUAGE BACKGROUND OF THE PRESENT CLASS

Language Background of the Class	Mean Achievement	S.E.
Level 1—At home the pupils spoke language other than English	37.56	± .14
Level 2—The pupils neither heard nor spoke another language	40.00	± .12

according to the language background of the present class. For computer purposes, the three options of question 39 were collapsed into two, that is alternative one and two were presented as level one and alternative three was presented as level two. In other words, it could be said that level one represents the mean reading achievement scores of pupils who at home spoke or heard a language other than English and level two represents the mean reading achievement of pupils who neither heard nor spoke another language. From the above table it can be seen that pupils who neither heard nor spoke another language than English at home had a higher mean reading achievement score than the pupils who spoke or heard a language other than English at home.

TABLE 7.10

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO GRADE AND LANGUAGE BACKGROUND OF PRESENT CLASS

Language Background of the Class	Grade 1	S.E.	Grade 2	S.E.	Grade 3	S.E.	Grade 6	S.E.
1.	1.79	± .28	2.72	± .27	3.67	± .27	6.82	± .33
2.	1.82	± .25	3.04	± .26	3.99	± .23	7.12	± .26

Table 7.10 presents the mean reading achievement scores of pupils by grade and language background of the present class. In all grades, pupils who neither heard nor spoke another language have scored higher in the SRAT than those pupils who either heard or spoke another language than English. Similarly, Table 7.11 represents the same information

TABLE 7.11

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO URBANR/URAL, GRADE AND LANGUAGE BACKGROUND OF PRESENT CLASS

Language Background of Present Class	Grade 1 Urban	S.E.	Grade 1 Rural	S.E.	Grade 2 Urban	S.E.	Grade 2 Rural	S.E.
1.	1.79	± .43	1.79	± .36	2.71	± .43	2.74	± .36
2.	1.77	± .39	1.88	± .32	3.09	± .40	3.00	± .34

Language Background of Present Class	Grade 3 Urban	S.E.	Grade 3 Rural	S.E.	Grade 6 Urban	S.E.	Grade 6 Rural	S.E.
1.	3.80	± .45	3.54	± .35	6.96	± .60	6.69	± .40
2.	4.03	± .34	3.95	± .31	7.40	± .37	6.85	± .38

classified according to U/R. For all grades the same trend is true, that the pupils who neither spoke nor heard another language at home performed better than the pupils who either heard or spoke another language than English, with the exception of urban grade one, where pupils who spoke or heard another language scored slightly higher than those pupils who neither spoke nor heard another language than English.

TABLE 7.12

NUMBER OF PUPILS AND MEANS IN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO PERCENTAGE OF PUPILS SPEAKING A SECOND LANGUAGE AT HOME.

Percentage of Pupils Speaking Second Language at Home	Mean Achievement	S.E.
1. No other language	41.11	± .20
2. Less than 10%	39.96	± .10
3. 10 - 30%	40.60	± .16
4. 30 - 60% + ...	38.10	± .16

TABLE 7.13

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO URBAN/RURAL AND PERCENTAGE OF PUPILS SPEAKING A SECOND LANGUAGE AT HOME

	Percentage of Pupils Speaking a Second Language at Home: Level 1	S.E.	Level 2	S.E.	Level 3	S.E.	Level 4	S.E.
Urban	41.95	± .31	40.47	± .14	41.06	± .22	39.86	± .29
Rural	40.26	± .26	39.45	± .15	40.15	± .24	36.35	± .20

With reference to question 40, the eight options which were presented as responses for question 40 were collapsed to four levels for computer purposes: (1) no other language at home: (2) less than 10 percent; (3) 10 to 30 percent; and (4) 30 percent and over. Table 7.12 indicates the mean reading achievement scores for each of these levels. As in other instances, level one, that is, "there is no other language", has scored higher than any of the other levels. This means that in classes where teachers indicated no other language spoken in the pupils' homes the reading scores were higher than in classes where a second language was reported. Table 7.13 indicates the same information classified according to U/R. In considering the effects of this question, one should look at the extreme cases of that table. For example, in level one where pupils spoke no other language at home as was indicated by the teachers, pupils scored 41.95 in their reading achievement test while at level four where the percentage was between 30 and 100 percent, the mean reading achievement was 39.86. The same holds true for the rural areas. The higher reading achievement scores of the urban pupils in comparison with those of the rural pupils could be detected in this table too.

TABLE 7.14

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO GRADE AND PERCENTAGE OF PUPILS SPEAKING A SECOND LANGUAGE AT HOME

	Percentage of Pupils Speaking a Second Language at Home							
	Level 1		Level 2		Level 3		Level 4	
		S.E.		S.E.		S.E.		S.E.
Grade 1	1.81	± .37	1.83	± .20	1.82	± .32	1.81	± .33
Grade 2	3.11	± .37	2.99	± .19	3.18	± .35	2.77	± .32
Grade 3	4.10	± .39	3.96	± .20	4.05	± .33	3.73	± .33
Grade 6	7.40	± .53	7.19	± .22	7.17	± .30	6.92	± .34

Table 7.14 represents the interaction of question 40 and grade. Again, here it will be necessary, in order to understand the significance of the question, to consider the extreme cases where there could be less contamination of border line cases. In grades, two, three and six, pupils who spoke no other language than English scored higher than those pupils who were in classes whose teachers indicated that in their class 30 percent and over (level 4), of the pupils spoke a language other than English. The same pattern was not true for grade one, where this difference was not manifested.

In judging the results of the present study, it must be borne in mind that one-fifth of the pupils speak, in addition to English, another language. The problem of bilingualism in the elementary schools of Manitoba is a considerable one and cannot be lightly ignored. Pupils coming from a home where a second language is spoken may have a different learning style from pupils who come from a home where only one language is spoken. It may be unreasonable to expect pupils coming from a non-English speaking home to reach the same level of competence in reading or writing as monolingual English speakers by the end of the present primary school age range.

The non-English speaking child coming to grade one has to acquire not only a new vocabulary but also a new system of phonemes and a different linguistic structure. The problems are considerable for the

teachers, confronted in one class with pupils who have widely varying backgrounds and levels of achievement in German, French or other languages than English. The teacher should be aware of the problems of interference between the language that is spoken by the child and English, in pronunciation, idiom, syntactic structure and spelling. It has been noted that in some schools the monolingual situation of the school is valued and taken advantage of. It is to the interest of the pupils in the educational system, in general, that elementary school teachers have some linguistic knowledge in order to be able to cope with the structure of languages other than English. This does not imply that teachers should be fluent in these other languages. By understanding the difficulties and the systems of those languages, the teacher will be able to understand better the difficulties that pupils may encounter in learning English.

It is necessary to consider further studies in this area of bilingualism with more refined instruments and definitions of "bilingual" pupils. In addition, studies to explore the possibilities of better teacher preparation for bicultural or intercultural situations will be necessary.

Socio-Economic Level

During the past 30 years, many researchers have investigated the correlation between socio-economic level (SEL) and educational achievement. Lindsay (1926), Chauncey (1929), Shaw (1943) and others found significant relationships between SEL and achievement test scores. As the sophistication of research methodology improved, comparisons of a single measure of educational achievement with a single measure of SEL came to be multi-factorial study.

In reading these or any other statistics it must be borne in mind that statistics is only a tool to provide an "overview" of individual data. If a pupil comes from a poor SEL, it does not mean that this pupil will automatically score lower than the pupil who comes from a higher SEL. For example, if the chances of being admitted to and of being successful in a university are eight out of ten for the student who comes from a high SEL, the chances for the student who comes from a poorer SEL may be four or five out of ten (King, 1967, 25-36).

Measures used for determining the SEL of the pupils of the present study were somewhat crude. The relationships in the study were, as a result, relatively weak. The variables which were secured were the fathers' occupations and, through questions in the questionnaire, the general educational level of the community in which the school was located. Unfortunately, in this study of more than 30,000 pupils it was not possible to study precise classifications (*e.g.*, parent-teacher) which were studied by Dave (1963). However, the present study does examine the effect between SEL and reading achievement and the statistics compiled were useful for that purpose.

Research studies over a period of thirty years verify that parental influences correlate with success or failure in the pupil's scholastic achievement in general and in reading in particular. In considering the general problem of SEL and learning, it is necessary to bear in mind the psychological factors which mediate between SEL and school achievement (Deutsch, *et al.*, 1967). The interaction between parents and children influences children's language development (Bernstein, 1961 ; Hess and

Shipman, 1965; Deutsch, 1964). It also affects their acquisition of perceptual and cognitive skills, and contributes to the shaping of their attitudes towards learning in general. Thus, it can be said that the general SEL of the family, as it is reflected on a cultural level with opportunities for varied experiences—travel and the availability of books and periodicals etc.—, has its effect on the child's potential to learn to read. The child does, after all, spend five years in the home environment before he goes to school, and even while he attends school he continues to spend as many waking hours in his home environment as he spends in school during the school term.

In reviewing the "Plowden Report", Cohen (1968, p. 329) stated:

> "Despite increases in the general level of education, a variety of educational novelties and a regular procession of curricula 'revolutions', the dreary facts remain: the outcomes of schooling are much better predicted by students' social and economic status than by the quality of their schools and teachers."

In another study, Oakland (1969) provided evidence that a direct relationship did exist between reading achievement and SEL. Reading achievement was assessed by an Eight-Point Reading Scale developed by Oakland in 1967.

Table 1 in Appendix III presents a summary of the analysis of variance of reading achievement scores classified according to U/R, grade level, sex, SEL and the four main levels of the language factor. The main effects of SEL yielded an F value of 353.89 which was significant at the .01 level. Significant interactions occurred with U/R and grade which provided F values of 353.89, and 5.71, both significant at the .01 level. The interaction between sex and SEL was significant at the .05 level. Of the higher order interactions tested the following was significant: U/R × Grade × SEL (.01 level). The interaction between SEL and language was not significant.

TABLE 7.15

MEAN READING ACHIEVEMENT SCORES OF PUPILS CLASSIFIED ACCORDING TO SOCIO-ECONOMIC LEVEL

SEL	Mean Achievement	S.E.
Upper	41.82	± .22
Middle	38.98	± .14
Lower	35.89	± .09

TABLE 7.16

MEAN READING ACHIEVEMENT SCORES OF PUPILS CLASSIFIED ACCORDING TO URBAN/RURAL AND SOCIO-ECONOMIC LEVEL

	Urban		Rural	
SEL	Mean Achievement	S.E.	Mean Achievement	S.E.
Upper	43.31	± .27	40.33	± .37
Middle	39.90	± .19	38.06	± .20
Lower	36.64	± .13	35.15	± .11

Data presented in Table 7.15 show that the lower the SEL the lower the achievement. In Table 7.16 the significant interaction between U/R and SEL is indicated. The gaps between urban and rural scores increased from lower to upper, the difference between urban/upper and rural/upper being 2.98: that between urban/middle and rural/middle 1.84; and that between urban/lower and rural/lower 1.49. The higher the SEL the greater the difference between urban and rural.

TABLE 7.17

MEAN READING ACHIEVEMENT SCORES OF PUPILS CLASSIFIED ACCORDING TO GRADE AND SOCIO-ECONOMIC LEVEL

	Upper	S.E.	Middle	S.E.	Lower	S.E.
Grade 1	19.34	± .43	18.22	± .28	16.70	± .17
Grade 2	29.93	± .42	29.23	± .27	27.13	± .17
Grade 3	43.29	± .44	38.63	± .28	35.78	± .17
Grade 6	74.72	± .45	69.85	± .29	63.96	± .18

TABLE 7.18

MEAN READING ACHIEVEMENT SCORES OF PUPILS CLASSIFIED ACCORDING TO URBAN/RURAL, GRADE AND SOCIO-ECONOMIC LEVEL

URBAN

	Upper	S.E.	Middle	S.E.	Lower	S.E.
Grade 1	18.80	± .53	17.92	± .38	16.31	± .26
Grade 2	31.66	± .53	30.11	± .38	27.51	± .25
Grade 3	44.66	± .56	40.32	± .39	37.21	± .26
Grade 6	78.13	± .55	71.27	± .39	65.53	± .28

RURAL

	Upper	S.E.	Middle	S.E.	Lower	S.E.
Grade 1	19.89	± .77	18.52	± .41	17.08	± .22
Grade 2	28.21	± .71	28.35	± .38	26.74	± .22
Grade 3	41.92	± .72	36.95	± .40	34.36	± .22
Grade 6	71.31	± .76	68.43	± .43	62.40	± .25

When grade was introduced as a factor, it was found that there was, generally, a pattern of greater spread between scores of SEL classifications as grade level was raised. This pattern was indicated by data presented in Tables 7.17 and 7.18 with the overall picture still that of higher achievement scores associated with the upper SEL. It may be seen from data presented in Table 7.17 that the difference between upper and lower SEL in grade one was 2.64 while in grade six the difference had increased to 10.76.

Data presented in Table 7.18 indicate that this pattern of differences was maintained with the introduction of the additional factor of U/R. There was an even greater difference between SEL in grade six and grade one. With the introduction of the U/R factor, however, it was found that the weight of this greater difference fell in the urban areas. In urban areas the difference between upper and lower SEL was 2.49 in grade one and 12.60 in grade six. In rural areas this difference was 2.81 in grade one but only 8.91 in grade six.

TABLE 7.19

MEAN READING ACHIEVEMENT SCORES OF PUPILS CLASSIFIED ACCORDING TO SEX AND SOCIO-ECONOMIC LEVEL

	SEL					
	Upper	S.E.	Middle	S.E.	Lower	S.E.
Male	41.36	± .31	37.96	± .19	35.03	± .12
Female	42.28	± .31	40.01	± .20	36.76	± .12

Table 7.19 indicates significant interaction between SEL and sex. Girls scored systematically higher in reading achievement than boys in all three SEL classifications. In this interaction the greatest difference between male/female achievement scores occurred at the middle SEL.

Another relevant analysis which was conducted on question 38 was that of the average educational and cultural family background of the school community. The teacher was asked to respond to the question "What is the average educational-cultural family background of your school community?" The alternatives to that question were (1) attended university; (2) attended high school; and (3) attended elementary. The highest percent of responses was that of "attended high school" with second "attended elementary" and third "attended university". Table 4 in Appendix III presents a summary of the analysis of variance of reading achievement scores of pupils classified according to U/R, grade, sex, SEL and levels of question 38 of the questionnaire. Question 38 yielded an F value of 422.37 which was significant at the .01 level. Question 38 provided four significant interactions: U/R, grade, and sex, at the .01 level, and SEL, at the .05 level. The relevant means of these analyses are presented in the following section.

TABLE 7.20

NUMBER OF PUPILS AND MEANS IN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO AVERAGE EDUCATIONAL-CULTURAL BACKGROUND OF SCHOOL COMMUNITY

Average Educational-Cultural Background of School Community	Mean Achievement	S.E.
1. Attendance of high school or university	40.56	± .09
2. Attendance of elementary	37.56	± .12

TABLE 7.21

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO URBAN/RURAL AND MEAN EDUCATIONAL-CULTURAL BACKGROUND OF SCHOOL COMMUNITY

Average Educational-Cultural Background of School Community	Urban	S.E.	Rural	S.E.
1.	41.11	± .12	40.00	± .13
2.	37.39	± .20	37.74	± .14

From the classes included in the analysis, approximately 15,000 pupils whose teachers indicated that the average community educational attainment was high school or university had a class mean reading achievement of 40.56. From those teachers who indicated that the average educational attainment of the community was elementary, 8,243 pupils achieved a class mean reading achievement score of 37.56 as indicated in Table 7.20. Table 7.21 indicates the mean reading achievement scores of urban and rural pupils for the two levels of question 38. In level one again, the pupils whose parents attended high school or university scored higher than those whose parents attended elementary school. It is of interest to note here that in urban and rural communities the population sample is equivalent as is indicated by the SE for urban ± .12 and for rural ± .13. The same equivalence does not apply to level two of urban and rural areas in Table 7.21. *The SE for urban and rural of level two indicates that the mean* reading achievement score of urban was drawn from a smaller sample than that of rural areas.

TABLE 7.22

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO GRADE AND MEAN EDUCATIONAL-CULTURAL BACKGROUND OF SCHOOL COMMUNITY

Average Educational-Cultural Background of School Community	GRADES TESTED							
	Grade 1	S.E.	Grade 2	S.E.	Grade 3	S.E.	Grade 6	S.E.
1.	1.84	± .17	3.06	± .17	4.02	± .17	7.28	± .19
2.	1.73	± .23	2.82	± .23	3.74	± .23	6.72	± .25

Similarly Table 7.22 indicates the mean reading achievement scores classified according to grade and the two levels of the educational-cultural background of the school community. Here again, in all grades the pupils of level one have scored higher than those pupils of level two in the same grades. It must be noted here that more pupils in the sample belong to communities with level one educational-cultural background than to

TABLE 7.23

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO SOCIO-ECONOMIC LEVEL AND MEAN EDUCATIONAL-CULTURAL BACKGROUND OF SCHOOL COMMUNITY

Average Educational-Cultural Background of School Community	Upper	S.E.	Middle	S.E.	Lower	S.E.
1.	43.31	±.24	40.57	±.16	37.79	±.11
2.	39.51	±.57	38.39	±.27	34.79	±.13

communities of level two background. Table 7.23 indicates the mean reading achievement scores classified according to SEL and the mean educational-cultural background of the school community. Here again, the trend is of monotonic decreasing order for level one and level two with a high mean reading achievement at the upper levels and a low mean achievement at the lower SEL. The superiority of the females can be seen

TABLE 7.24

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO SEX AND MEAN EDUCATIONAL-CULTURAL BACKGROUND OF SCHOOL COMMUNITY

Average Educational-Cultural Background of School Community	Male	S.E.	Female	S.E.
1.	39.44	± .12	41.67	± .12
2.	36.85	± .16	38.28	± .17

from Table 7.24 where, again, the higher level of the educational-cultural background of the school community scored higher than the second level of elementary educational-cultural background. It must be noted here that females scored higher than males in both levels.

A factor that should be borne in mind in considering SEL is the mobility between levels of society. This is a recent factor now being studied by sociologists and educational researchers. For example, a study by Floud, Halcey, and Martin (1957) showed that the percentage of children of manual workers gaining a grammar school education rose from 11 percent in the period from 1884 to 1900 to 34 percent from 1950 to 1953.

SEL and social status by themselves are units too coarse to be considered alone in an inquiry. Other variables must be sought before the complexities of the impact of environment on educational opportunity and achievement can be more completely understood. "At home" supervision, for instance, could well be considered by further research. It is perhaps probable, however, that the attitude of parents towards the school as an educative agency is a more important influence than any supervision they might administer. It is of interest to note here that whatever effects SEL may have on achievement, occur before grade nine (Flanagan, *et al.*, 1967). Findings of the Manitoba Reading Commission Study show that SEL is a significant factor for reading achievement at the elementary level.

Urban/Rural

Table 1 in Appendix III represents a summary of the analysis of variance of mean reading achievement scores of pupils classified according to U/R, grade level, sex, SEL and the main four levels of language factor. The main effect of the analysis of variance U/R yielded an F value of 230.30 which was significant at the .01 level. Significant interactions with U/R were those with grade (significant at the .05 level) ; with SEL (significant at the .01 level) ; and with language (significant at the .01 level). The interaction between U/R and sex was not significant. Discussion of the interactions SEL × U/R and Language × U/R may be found in earlier sections. Significant higher order interaction with U/R were mentioned in a previous section.

TABLE 7.25

MEAN READING ACHIEVEMENT SCORES OF PUPILS CLASSIFIED ACCORDING TO URBAN/RURAL

	Mean Achievement	S.E.
Urban	39.95	± .10
Rural	37.85	± .10

TABLE 7.26

MEAN READING ACHIEVEMENT SCORES OF PUPILS CLASSIFIED ACCORDING TO URBAN/RURAL AND GRADE

	Urban	S.E.	Rural	S.E.
Grade 1	1.76	± .20	1.85	± .19
Grade 2	2.97	± .20	2.77	± .19
Grade 3	4.07	± .20	3.77	± .19
Grade 6	7.16	± .21	6.73	± .21

In this study the U/R differences were studied from the point of view of test scores. Table 7.25 shows a higher mean reading achievement score for urban (39.95) than for rural (37.85). Table 7.26 presents the difference between urban and rural by grade. Although in grade one the rural mean score of 1.85 was higher than that of 1.76 for urban, in general the scores shown in Table 7.26 favored urban pupils. In grades two, three and six urban pupils scored higher than rural pupils.

Barr (1959) and Ljung (1958)—the latter as reported by Husén (1967)—arrived at the same results: that urban pupils achieved higher scores than rural pupils on standardized educational tests. The Ljung study was conducted with reference to fourth and sixth grade elementary school pupils as part of Swedish National Surveys.

With specific reference to either arithmetical computation or problem solving, however, Jackson (1957) reported that there was no significant difference in the achievement levels of pupils from urban or rural areas. He did, however, note that differences were somewhat greater—though not significantly so—for problem solving.

Lack of time and maximum facilities for the present study prevented a more complex analysis of the data and as comprehensive a breakdown of the areas of the province as the study might have undertaken. The concentration of approximately one-half of the population of the province in Winnipeg and the distribution of the other half throughout the remaining area made difficult any comprehensive breakdowns according to population dispersion.

TABLE 7.27

MEAN READING ACHIEVEMENT SCORES OF PUPILS CLASSIFIED ACCORDING TO GRADE

	Mean Achievement	S.E.
Grade 1	1.80	± .14
Grade 2	2.87	± .13
Grade 3	3.92	± .14
Grade 6	6.95	± .15

Table 7.27 presents the mean total scores of reading achievement and the SE for each of the four grades. In summarizing the analysis of variance of that section, it was found that there was a significant difference between U/R and grade, but no significant difference between U/R and sex. Other significant differences found were with the interactions U/R and SEL and U/R, grade and SEL. An additional and significant difference with reference to U/R was found in the achievement of pupils speaking a language other than English in the urban or in the rural area.

The inherent *urban* or *rural* nature of a school was due only to its location and can not be regarded as an immediate or primary effect on either high or low reading achievement scores. Factors that should be borne in mind, then, in trying to explain the variability between urban and rural are: environmental factors such as organization of school systems, expenditures for and qualifications of teachers, SEL of parents, sex of pupils and type of reading scores. The significant factors in the overall analysis of variance which best represent such school environmental variables are U/R and SEL, U/R, grade and SEL, and U/R and language.

Later discussion of these factors may offer possible explanations for some of the differences which show up in the U/R analysis of variance.

Husén (1967), in discussing the same environmental variables with reference to *mathematical achievement*, referred to some studies in the United States which, although unpublished, provide some support for heterogeneity of population as a factor of the difference between urban and rural. According to Husén the unpublished studies showed that the highest level of achievement was found in certain mid-western states where the population was of relatively homogeneous composition in terms of both occupation and ethnic origin. Husén, in the same discussion, referred to Israel which is composed of a wide ethnic range and where the differences between rural and urban groups were as significant as they were found to be in the United States.

Another consideration in explaining the U/R differences could be the difference in qualification of teachers. According to Table 4.64 in Chapter four, in the discussion of the teachers' characteristics it was noted that 609 rural teachers (compared to 299 urban teachers) had one year of university training. The attraction of large-city life may still continue, however, to keep the best qualified teachers gravitating away from rural posts, leaving behind teachers with less experience and training to maintain the rural schools.

The accomplishments of rural schools in Manitoba must not, however, be overlooked.

The present study has pointed out only the gross results. Further investigations are needed to determine the processes at work in reducing educational differences between urban and rural communities. Perhaps this would more correctly be the province of a sociologist or anthrolopogist.

TABLE 7.28

MEAN READING ACHIEVEMENT SCORES OF PUPILS CLASSIFIED ACCORDING TO SEX

	Mean Achievement	S.E.
Male	38.12	± .10
Female	39.68	± .10

Sex

The study was designed to examine possible differences between the achievement levels of the sexes. The overall analysis of variance in Table 1 in Appendix III showed a significant F value of 127.93 ($F = p < .01$) for

this variable. Two interactions were significant at the .05 level, those of sex and SEL, and sex and language. Other higher order interactions with sex were significant and are mentioned in earlier sections. Table 7.28 shows the mean reading achievement scores of girls at 39.68 and of boys at 38.12.

TABLE 7.29

MEAN READING ACHIEVEMENT SCORES OF PUPILS CLASSIFIED ACCORDING TO URBAN/RURAL, GRADE AND SEX

	Urban				Rural			
	Male	S.E.	Female	S.E.	Male	S.E.	Female	S.E.
Grade 1	17.19	± .27	18.16	± .28	17.96	± .26	19.04	± .27
Grade 2	29.17	± .27	30.35	± .28	26.81	± .26	28.73	± .27
Grade 3	40.08	± .28	41.38	± .28	36.37	± .26	39.12	± .27
Grade 6	70.66	± .29	72.63	± .30	66.69	± .29	68.07	± .30

In Table 7.29 where the grade and U/R factors interact with the sex factor, girls are still shown to achieve higher than the boys. In grade one, for example, rural females with 19.04 scored higher (1.08 more) than rural males with 17.96, and higher also than urban males with 17.19. While the females maintained the position of higher scores than males within U/R classification throughout grades two, three and six, in these grades the U/R order was reversed. In grades two, three and six urban females scored highest.

Differences between urban boys and girls increased from .97 to 1.97 from grades one to six. An increasing effect is also to be noted in the mean achievement score differences between rural boys and girls in grades one, two and three. By grade six, however, the reading achievement difference between rural boys and girls decreased markedly, as is indicated by the scores shown in Table 7.29.

Studies undertaken to determine the influence of sex as a predictor variable upon reading achievement generally agree in their results—that is, that sex has a definite correlation with achievement. But the apparent significance of sex differences must be regarded cautiously. Although a strong correlation is indicated between sex and achievement, the correlation does not mean that achievement is determined either *solely* or *necessarily* by sex.

Sutton (1955, pp. 531-538) and Hirst (1969, pp. 317-321), testing kindergarten and grade one pupils found that female achievement was higher than male. Hirst, taking the results further in a three-year study, pointed out that, if sex is a variable, prediction measures for each sex may be different. Using different tests, she determined prediction measures for each sex, concluding finally that, although sex still emerges as a factor for first grade reading, in order to predict reading achievement with some success, different measures are necessary to tap similar skills of males and females. Anderson, Hughes and Dixon (1956, pp. 447-453) found that girls read sooner and better than boys and again, when reading achievement was compared with readiness, the girls scored higher at a younger age level.

Gates (1961, pp. 431-434), Wozencraft (1963, pp. 21), and Parsley, Powell and O'Connor (1964, pp. 268-70), conducted similar experiments

from grades two through eight. Gates found that once again the mean reading achievement for the girls was higher than that of the boys and that the standard deviations for the boys were greater in all cases except in speed in grades two, three and six. He noted that the standard explanation that girls read better because they mature earlier was not really true since the pattern of scoring was continuous from grades two through to grade eight. His results suggest an environmental rather than an hereditary explanation—girls pursue activities which lend themselves to reading. If this thesis is valid, it explains the fact of the boys' lower mean scores in reading ability throughout the grades, the greater variability of the boys' abilities, and their predominance at the bottom of each grade group score without a corresponding accumulation at the top. It is interesting to compare this conclusion to the comments of those who researched instructional materials. Wozencraft (1963), and Parsley *et al.*, (1964), again working with intermediate levels (grades three and six, and four to eight, respectively), achieved similar results. Parsley *et al.*, (1964), dividing their sample into three groups of under-achievers, average-achievers and over-achievers, noted that girls' scores exceed boys' scores, that is, female under-achievers achieved more than their male counterparts in reading achievement and arithmetic fundamentals but not in arithmetic reasoning.

A study by Chall (1966, pp. 569-579) to determine the teacher's influence upon the process of learning to read in the first grade indicated that only four of the 45 measures of pupil skills tested (the SRAT was one of the tests used) showed significant sex differences. It would appear that teacher method may have a significant effect upon achievement with regard to sex difference.

Morris (1959) provided evidence that reading achievement scores classified according to sex favored males, a finding which, according to her, agreed with that of the National Assembly of the Ministry of Education. However, in explaining this conflicting evidence, or as she called it "conflict with evidence of the superior reading ability of girls", she described it as resting with the content of the test administered. Because a different reading test given to the same ten children showed the usual apparent superiority of females, she considered the first test, which had favored the males, invalid.

Mortenson (1968) noted that sex and SEL together did not have a significant effect on the independent variable. The reader may remember that the dependent variables of his study were visual discrimination of letters and words, auditory discrimination of beginning sounds and total visual and auditory discrimination.

TABLE 7.30

MEAN READING ACHIEVEMENT SCORES OF PUPILS CLASSIFIED ACCORDING TO SEX AND SOCIO-ECONOMIC LEVEL

	SEL					
	Upper	S.E.	Middle	S.E.	Lower	S.E.
Male	41.36	± .31	37.96	± .19	35.03	± .12
Female	42.28	± .31	40.01	± .20	36.76	± .12

In the present study, the interaction of sex and SEL was significant with an F value of 3.51 at the .05 level. Table 7.30 indicates the mean reading achievement scores of pupils classified according to sex and SEL. In each SEL range—upper, middle, and lower—the girls' mean reading achievement scores were higher than those of boys. There was a difference of .92 for the upper SEL, 2.05 for the middle and 1.73 for the lower.

Although the interaction between grade and sex was not significant, (no table is presented), a pattern similar to that observed in Table 7.30 was observed with the exception of grade six. It is important to notice here that the rate of development from grades three to six appears to be decreasing as an average of the mean indicates a yearly rate of 10.15 for boys and 10.03 for girls. While no conclusion can be reached as to the significance of this difference, it does appear that the relative developmental gain difference between the sexes is decreasing. In turn, this could suggest the possibility that the gap between male and female reading achievement levels could be closed during the time the students are completing secondary school. Such an hypothesis, however, would have to be tested in the classroom at the secondary level. A re-examination of this problem with respect to predictor variables and the effects of instructional methods on the sexes would have to be thoroughly investigated should validation of such an hypothesis be attempted.

IQ

Table 5 in Appendix III presents a summary of the analysis of variance of reading achievement scores of the pupils classified according to U/R, IQ, sex, SEL and two levels of the language factor. The IQ factor yielded an F value of 887.43 which was significant at the .01 level. The significant interaction was IQ with language which yielded an F value of 6.53 significant at the .01 level. Another two interactions which were significant (.05 level) were IQ and sex, and IQ and SEL. The interaction between U/R and IQ was not significant. The relevant means of this analysis are presented in the latter part of the following section.

Warner (1968), in her study, concluded that intelligence was the most significant single factor related to reading achievement, not only for itself but in conjunction with visual perception, since those aspects of visual perception which proved significant with regard to reading achievement also involved aspects of intelligence, *e.g.*, cognitive ability was required for the identification of patterns in which letters were arranged. Warner (1968), whose study involved Negro, Caucasian, Mexican-American and Oriental groups, concluded that with regard to ethnic groups her results indicated that, when intelligence was factored out, there were no significant differences between ethnic groups with respect to achievement. The question of intelligence and race, a rather popular theme in recent years, will not be discussed in this report.

A study by Peal and Lambert (1962) reported that, in a comparison of bilingual and monolingual pupils, bilinguals were intellectually superior, possessed greater verbal skills, exhibited greater mental flexibility, were more facile in concept formation and achieved higher grades in school. Other studies by Warner (1968), Liedtke and Nelson (1968), dealt with the effects of bilingualism on concept formation. The authors considered experience and social interaction as the two main factors responsible for

individual differences or retardation and acceleration in concept formation, that is, a young child learning two languages at the same time was exposed to a greater amount of social interaction when compared to someone his own age learning just one language. The test for concepts of linear measurements was constructed to compare certain aspects of concept development of bilingual and monolingual pupils. The two samples required for the study came from six schools of the Edmonton separate schools system. Nine grade one classrooms were made available. The results indicated that the linguistic and cultural experience of the bilinguals was an advantage. The intelligence factors necessary for concept formation seemed to have developed to a greater extent in the bilingual subjects. Such generalizations cannot be made here because the MRC study was not an experimental study.

The study of Liedtke and Nelson (1968) indicated that bilingual pupils consider length before monolinguals do. The study of Liedtke and Nelson, of course, goes one step further and states that, if this is true for other concept conservations, it could be that bilingualism accelerates development and the bilinguals reach the concrete operational stage (Piaget) before the monolinguals do. This, of course, would have important implications for those who teach such pupils in the primary grades.

There is evidence that a child's IQ may be affected by the intellectual atmosphere of his home. There is considerable correlation between the intellectual interest of the parents and the IQ of the children. The child's intellectual growth seems also to be directly affected by the current of intellectual activity that goes on in the home, the degree of intelligence parents possess, what they discuss, how they answer their children's questions and so on.

The significant difference between higher IQ pupils and lower IQ pupils in reading achievement is consistent with the established view that intelligence and reading achievement are correlated.

TABLE 7.31

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO IQ

I.Q. Levels	Mean Reading Achievement	S.E.
I.Q. 75	25.09	± .75
76 - 90	25.41	± .35
91 - 100	31.40	± .27
101 - 110	37.59	± .25
111 - 125	45.26	± .24
I.Q. 125	58.08	± .49

Table 7.31 presents the mean reading achievement scores according to IQ. The higher the IQ level the higher the mean reading achievement score.

TABLE 7.32

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO IQ AND SOCIO-ECONOMIC LEVEL

	SEL					
I.Q. Levels	Upper	S.E.	Middle	S.E.	Lower	S.E.
I.Q. < 75	25.33	± 4.05	25.20	± 2.15	24.75	± .81
I.Q. 76-90	24.18	± 1.95	25.75	± .94	26.32	± .38
I.Q. 91-100	30.63	± 1.13	31.94	± .59	31.62	± .31
I.Q. 101-110	37.57	± .80	37.47	± .48	37.73	± .31
I.Q. 111-125	46.99	± .64	44.35	± .45	44.44	± .33
I.Q. > 125	60.01	± 1.01	60.86	± .85	53.38	± .76

The data of Table 7.32 indicate the mean reading achievement scores classified according to IQ and SEL. It must be borne in mind that, although the interaction between IQ and SEL was significant at the .05 level, the only time that a clear pattern can be distinguished in this table is at the level of IQ from 111-125 where at the upper SEL the pupils scored 46.99 and in the lower SEL they scored 44.44, while similarly, at the IQ level of more than 125, the upper level scored 60.01 and the lower level scored 53.38. It must also be noted that the 60.01 score at the upper SEL is a score which is drawn from a very small sample as is indicated by the SE (±1.01), while the 53.38 at the lower level is drawn from a relatively larger sample as the SE of ±.76 indicates. It is of interest here to notice that even other studies such as those by Chauncey (1929) and Shaw (1943) found a significant relationship between SEL and achievement test scores.

With reference to IQ and SEL, it is of interest to note here that Thorndike (1951) used the test scores of half a million pupils from a wide variety of communities (urban and rural and large and small) and approximately 24 census variables; 11 of these 24 census variables being significant at the .01 level. The highest correlations with IQ were: measures of education of the adult population—close to .43; the home ownership—.39; the quality and cost of housing—.33; proportion of native-born whites—.28; the rate of female employment—.26; and the proportion of professional workers—.28. This indicates that this crude measure of SEL is rather coarse and other factors, such as attitudes of parents towards education etc., should be considered in researching SEL.

TABLE 7.33

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO IQ AND LANGUAGE (MONOLINGUAL/BILINGUAL)

I.Q. Level	Monolingual	S.E.	Bilingual	S.E.
I.Q. < 75	26.36	± .89	23.82	± 1.36
I.Q. 76-90	24.83	± .41	25.99	± .64
I.Q. 91-100	31.63	± .31	31.16	± .54
I.Q. 101-110	36.33	± .28	38.85	± .56
I.Q. 111-125	44.24	± .27	46.28	± .61
I.Q. > 125	55.40	± .53	60.77	± 1.41

From Table 7.32 one can see that, in general, high achievement in reading was associated with high IQ bilingual pupils except for two instances where the monolingual pupils achieved higher than their bilingual counterparts—subjects with IQs below 75 and subjects with IQs between 91 and 100 inclusive. The indication from the table that bilingual pupils who scored high in reading achievement levels also scored high in the intelligence test is congruent with some of the previous research which has been mentioned. Braun (1969) found that the monolingual community had higher mean deviation IQ scores on the Pintner Ability Test than German bilinguals and French bilinguals. This is not in accordance with the present findings. Braun's definition of "bilingualism" included subjects who said they could understand and speak a language other than English. Such definition is close to the present report's definition where teachers were asked to define their pupils as bilinguals.

It must be noted that most scores of bilingual pupils were drawn from a smaller sample than those of the monolinguals as was indicated by the SE. The SE of all bilingual scores, for example, were higher than those of monolingual scores. Although the present study is not an experimental study by any means, one finding of this study was that low IQ monolinguals had a higher mean reading achievement than bilinguals and that for those with high IQ the reverse was true. In addition, the effect of IQ on achievement was greater for bilinguals than for monolinguals. The fact that there was evidence in the data indicating that bilingualism and IQ are related suggests that further studies with tighter constraints can provide more evidence.

CHAPTER 8

THE RELATION OF THE LEARNING ENVIRONMENT TO READING ACHIEVEMENT

Size of Class

The analysis of reading achievement scores was classified according to the size (number of pupils) of class as reported by teachers in the study. The analysis of variance yielded a significant F value of 56.41 ($F = p < .01$) as shown in Table 6, Appendix III. Other significant (.01 level) interactions occurred with U/R and question 37, grade and question 37, and SEL and question 37. The interaction of sex and question 37 yielded an F value of 3.17, significant at the .05 level. Other higher order interactions which were found to be significant are the following: U/R × Grade × Q37 (.01 level); U/R × Sex × Q37 (.05 level); Grade × Sex × Q37 (.05 level); and Grade × SEL × Q37 (.01 level). As in the previous chapter, only meaningful interactions will be discussed here with occasional reference to three-way tables.

The analysis of variance of data from this question of the questionnaire —"What is the size of your present class?"—was carried out with four levels of class-size factor, as follows:

level one —fewer than 20 pupils;
level two —between 20 and 25 pupils (inclusive);
level three—between 26 and 30 pupils (inclusive);
level four —between 31 and 35 pupils (inclusive).

TABLE 8.1

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO SIZE OF PRESENT CLASS

Size of Present Class	Mean Achievement	S.E.
1. Fewer than 20	37.67	± .27
2. 20 - 25	38.90	± .13
3. 26 - 30	39.41	± .11
4. 31 - 35	40.90	± .15

The data of Table 8.1 show that the class mean achievement scores of pupils in larger classes were higher and that, generally, a pattern was established of higher to lower scores paralleling larger to smaller classes, respectively.

Class size has been a long standing problem in the elementary school. It is believed that the teacher can be more effective with a small class (Vandiver, 1957, p. 7) which enables the teacher to know each pupil and his current level of achievement.

Conflicting evidence has been produced by several research studies. Spitzer (1954, pp. 82-86) found that pupils in small classes had no particular advantage over those in large classes in acquiring the kind of achievement measured by the Iowa Test for Basic Skills. His sample consisted of fifty grade three classes averaging slightly more than twenty pupils and fifty-eight grade three classes averaging slightly more than thirty pupils.

Frymier (1964, pp. 90-93), found a significant correlation between class size and reading achievement in grade one. Achievement was higher for small size classes. Pupils of his study were tested with the Williams Primary Reading Achievement Test in nine classes averaging fewer than thirty pupils and six classes averaging more than thirty.

In most research studies the number of pupils mentioned is twenty-five per class. However, Vincent *et. al.*, (1960) found that teachers of smaller classes tended to be more creative in education; they tended to try new approaches; they had more time for more individual attention to pupils; and their records tended to be more complete with reference to their pupils compared with those of teachers of larger classes.

Warburton (1964, pp. 101-111) discussed the relationship between brightness, backwardness and school environment in 48 Salford schools in which pupils of secondary age were taught. (Grammar schools, private schools and schools for handicapped children were excluded.) He considered that the findings with respect to size of classes were complex. The distribution described a U-shaped figure with optimum attainment, that is, more brightness and less dullness, being shown by the classes of medium size. In Salford the optimum size of class was about 35, possibly because organization was easier with middle-sized groups. Evidence from the Kent Education Authority showed that the highest percentage of passes in the Eleven Plus Examination tended to be obtained by schools in which the sizes of classes or age-based groups lay roughly between 30 and 40. Schools with groups of fewer than 30 were the least successful, but those with groups between 45 and 60 were also below average.

Warburton suggested that future research might well consider variations in sizes of rooms used for class teaching and thereby introduce study of classroom densities (*i.e.*, the number of pupils per square yard of classroom floor space).

Morris (1959), in her Kent Study, found that schools with an "unfavorable" pupil-teacher ratio returned higher scores on the whole than those with small classes. She stated that this finding could not be taken at face value, for it had been seen that large classes were associated with large schools where other circumstances perhaps tended to raise the scores.

According to Harris (1969, p. 1086) "the prevailing disposition to favor small classes for instructional purposes, including reading in self-contained classes, obviously rests upon considerations other than reading achievement as measured by formal achievement tests."

At least one related research project—(Warburton, 1964) mentioned earlier—suggested that the effects of class size on reading might be different from those on other subjects. In the Warburton study small arithmetic classes, for example, achieved higher than small reading classes.

These results do, however, raise the question of how important differences other than size of class are. Perhaps arithmetical skills depend relatively more than reading skills on the experience of teachers and less on home backgrounds, and perhaps home backgrounds and teachers' experience have more effect on achievement than does class size.

Results of the present study—although it is not an experimental study by any means—indicate that pupils of the larger classes (31-35 pupils) achieved higher in reading (as measured by the scores of Paragraph Meaning of SRAT) than pupils of the smaller classes. Pupils in classes averaging 31 to 35 members, as shown by data in Tables 8.2, 8.3 and 8.4, scored consistently higher whether achievement scores were compared to U/R, sex or SEL classification.

TABLE 8.2

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO URBAN/RURAL AND SIZE OF PRESENT CLASS

	Size of Present Class							
	1	S.E.	2	S.E.	3	S.E.	4	S.E.
Urban.....	36.80	± .61	39.32	± .21	40.73	± .16	41.70	± .19
Rural.....	38.54	± .30	38.48	± .17	38.09	± .16	40.10	± .24

TABLE 8.3

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO SEX AND SIZE OF PRESENT CLASS

	Size of Present Class							
	1	S.E.	2	S.E.	3	S.E.	4	S.E.
Male.....	37.32	± .38	37.80	± .18	38.62	± .16	39.99	± .21
Female.....	38.02	± .39	40.01	± .20	40.20	± .16	41.81	± .21

TABLE 8.4

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO SOCIO-ECONOMIC LEVEL AND SIZE OF PRESENT CLASS

	Size of Present Class							
SEL	1	S.E.	2	S.E.	3	S.E.	4	S.E.
Upper.....	38.98	± 1.18	42.00	± .48	42.12	± .35	44.16	± .42
Middle.....	38.61	± .56	39.24	± .27	39.76	± .23	40.65	± .30
Lower.....	35.42	± .32	35.47	± .16	36.35	± .14	37.90	± .19

From Table 8.2 it can be seen that the lowest mean reading achievement score was in urban and level one of the "size of present class". From the same table, it appears that class size affects the urban areas more than the rural. The lowest and the highest mean reading achievement is marked in the urban areas.

Table 8.3 indicates that females are affected by class size more than the males, particularly in the lowest and highest levels of class-size.

The largest difference in the mean reading achievement scores when considering class size and SEL occurred between upper and lower SEL at level two of the class size.

TABLE 8.5

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO GRADE AND SIZE OF PRESENT CLASS

	Size of Present Class							
	1		2		3		4	
		S.E.		S.E.		S.E.		S.E.
Grade 1	1.69	± .48	1.85	± .24	1.77	± .21	1.92	± .36
Grade 2	2.51	± .54	2.90	± .24	3.01	± .21	3.05	± .32
Grade 3	4.13	± .54	3.78	± .30	3.95	± .22	4.03	± .26
Grade 6	6.72	± .67	7.02	± .31	7.02	± .25	7.34	± .27

TABLE 8.6

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO GRADE, URBAN/RURAL AND SIZE OF PRESENT CLASS

	Size of Present Class: 1				2			
	Urban	S.E.	Rural	S.E.	Urban	S.E.	Rural	S.E.
Grade 1	1.56	± 1.03	1.82	± .54	1.87	± .35	1.84	± .32
Grade 2	2.12	± 1.23	2.90	± .60	2.89	± .43	2.91	± .29
Grade 3	4.36	± 1.35	3.89	± .59	3.82	± .44	3.73	± .42
Grade 6	6.66	± 1.36	6.78	± .77	7.14	± .51	6.90	± .40

	Size of Present Class: 3				4			
	Urban	S.E.	Rural	S.E.	Urban	S.E.	Rural	S.E.
Grade 1	1.77	± .32	1.77	± .29	1.89	± .44	1.95	± .63
Grade 2	3.09	± .28	2.94	± .32	3.29	± .41	2.82	± .52
Grade 3	4.06	± .33	3.84	± .30	4.17	± .36	3.90	± .40
Grade 6	7.36	± .34	6.67	± .37	7.32	± .34	7.35	± .44

It should be noted, however, that when grade and class size; grade, U/R and class size; were compared, as shown in Tables 8.5 and 8.6 respectively, in general grade three proved the exception to the general pattern with achievement higher in the smaller classes.

Although the present study shows lower reading achievement scores associated with smaller classes and higher scores associated with larger classes, these trends cannot be regarded as conclusive with respect to the effects of class size on reading achievement. Unfortunately, due to the collapsing of the original eight size categories of the questionnaire to the four categories suitable for computer processing, the very few classes of from 35-40 pupils and 40-50 pupils were eliminated. Because the analysis was not continued to include these few large classes, generaliza-

tions from the present results would not be tenable. The relationship between reading achievement and class-size is non-linear, *i.e.*, a constant increment (or decrement) in achievement is not associated with a constant increment (or decrement) in class-size, and vice versa.

Nevertheless, it is possible to offer some tentative explanations for the results which are noted in the study. It is possible that streaming was prevalent in those schools studied, and that such a practice helped produce the increased-achievement-in-larger-class result. In general, "duller" pupils are grouped in smaller classes. Since more experienced, better qualified teachers are frequently assigned to larger classes, this practice, too, may have helped shape "size of class" achievement trends. Further, there is a possibility that small classes were more often located in smaller schools and pupils, therefore, shared what disadvantages small schools might have.

The teacher or educational administrator should not infer that there is one right size for a class. It is necessary to investigate the optimal size of class for a particular teaching task, and this can be done only in the classroom itself through experimental research.

Although in the present study it was difficult to draw any conclusive evidence, one cannot escape the conclusion that class size is not *in itself* an important factor for success in the education process. Other factors need to be taken into consideration in such an inquiry.

Classroom Organization/Grouping

The analysis of variance for reading achievement scores classified according to the type of organization used in classrooms for reading instruction yielded a significant F value of 191.78 ($F = p < .01$), as shown in Table 7 of Appendix III. In addition, Table 7 of Appendix III shows that the levels of question 15 interacted significantly with SEL, (.01 level). The present analysis of variance was performed with a limited number of factors—Sex, SEL, and Q15—as the introduction of other factors produced many empty cells in the analysis. The relevant means of this analysis are presented in the latter part of the following section.

The analysis of variance of data from this question of the questionnaire —"What type of organization is used in your classroom for reading?"— was carried out with organization groups at five levels as follows (with descriptions of levels patterned after those appearing in the questionnaire):

level one —self-contained classroom (pupils stay in classroom for reading instruction);

level two —Joplin-type (pupils are grouped across grade levels—go to classroom where their level is being taught);

level three—within-grade grouping (example: first grade teachers exchange some pupils during reading period for better grouping);

level four —non-graded; and

level five —departmentalized (pupils go to reading teacher for reading instruction) and other.

TABLE 8.7

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO TYPE OF CLASSROOM ORGANIZATION USED FOR READING

Types of Classroom Organization	Achievement Scores	S.E.
1. Self-contained Classroom	39.99	± .19
2. Joplin-type	39.70	± .69
3. Within-grade grouping	34.06	± .52
4. Non-graded	58.05	± .90
5. Departmentalized and Other	46.11	± .76

The data of Table 8.7 show that the class mean achievement scores of pupils in non-graded classes were higher than scores representing other forms of classroom organization. At 58.05 their class mean score was 11.94 higher than that of pupils in "departmentalized and other" whose class mean score was 46.11, and 18.06 higher than that of pupils in self-contained classroom organization whose class mean score was 39.99. Pupils in the Joplin-type organization scored next highest with 39.70 and the lowest score of 34.06 occurred in classrooms with within-grade organization.

The effects of various classroom grouping procedures upon reading achievement have been studied by several researchers with conflicting results in many cases. In general, the studies were concerned with some form of inter-class grouping where pupils were grouped for reading instruction on the basis of reading ability irrespective of grade level.

Differences in the pupils' reading abilities in *a single classroom* may range from non-reading to reading at grade five or six level in the primary grades. These variations in reading ability apparently require some type of modification of instruction to allow effective teaching and learning. Teachers have been using one or more of the following practices:

(1) homogeneous grouping on the basis of reading achievement;
(2) regrouping into homogeneous classes for reading only;
(3) grouping by interests;
(4) individualized reading program;
(5) "circling" or, more appropriately, circulating.

Studies at the intermediate level by Powell (1964, pp. 387-92), Moorehouse (1964, pp. 280-6), and Carson and Thompson (1964, pp. 38-43) provided evidence that there were no significant achievement differences between classes grouped on the basis of reading ability and classes which were self-contained and ungrouped. Carson and Thompson were working with the Joplin Plan in which pupils are grouped according to reading ability regardless of age difference. Their premise was that the Joplin Plan would produce significantly higher reading gains than the usual grouping plan for reading instruction in a self-contained classroom. Their results showed no significantly higher reading gains between the experimental group (following the Joplin Plan) and the control group (using the self-contained classroom) and no significant differences between the fast and slow learners of either group. What did appear significant, however, was the positive attitude towards reading which the Joplin Plan

developed in the teachers and pupils of the experimental group. Anastasiow (1968, pp. 495), testing the hypothesis that the essential requirement of a strong program is the placement of the pupil in an instructional group geared to his current achievement (*i.e.,* homogeneous grouping on the basis of reading achievement), based his tests on the assumption that grouping could be achieved through teams or through ungraded or self-contained classrooms. His results showed significant gains through grouping on the basis of either abilities, interests or problems, but showed no significant difference for cross-graded (or ungraded) grouping in the self-contained classroom.

MacDonald, Harris and Mann (1966, pp. 643-652), adopting a slightly different premise from that used by Carson and Thompson, tested attitudes as well as achievement. Their central hypothesis was that, if pupils using typical basal reading materials experienced a one-to-one instructional relationship to the teacher rather than ability grouping, their achievement in reading would be significantly greater and their attitudes toward reading and school learning would be more positive. The results of Carson and Thompson nullified the first section of their hypothesis and proved the second—that is, the high readiness control group (using ability grouping) scored significantly higher on post-tests than did its counterpart in the experimental group (using individualized instruction). (It should be noted that the SRAT was used in subtests on the experiment and that grade one pupils were those tested.) However, the experimental group showed a more positive attitude towards and a significant preference for reading, writing, and other academic interests than did the control group.

Joseph (1968, pp. 314-334) attempted to determine whether class growth in reading, as measured by a standardized test (Metropolitan Reading Test), was associated with both the homogeneity of the class and its initial achievement level. The study was conducted with grades three and four pupils over a period of two years. His findings indicated that mean gains in achievement tended to be positively associated with initial reading level only. He noted that grouping, by itself, without curricular modification as a concommitant, did not give rise to the desired outcome of improved pupil performance.

Slightly conflicting evidence was found by Jones *et al.,* (1967) who conducted two separate experiments with grade one pupils to determine if non-grading resulted in differences in performances and if differences were stable after non-grading became an established part of the school organization. The results from both experiments proved the hypothesis valid. The first set of tests (Lee Clark Reading Test, Stanford Word Meaning, Primary Section) was administered a year and a half after the start of the program. Results at this stage showed the experimental (non-graded) groups *scoring significantly higher* than the control groups. After three years pupils were tested with the California Achievement Tests. Findings at this time showed the experimental groups still scoring higher than the control groups but the difference was not significant. It is interesting to note that again the attitudes of the pupils towards reading in the non-graded groups were "better" than those of the pupils in the traditional groups. Carbone (1961, pp. 82-88) went even further in his study, comparing graded and non-graded classes at the fourth, fifth and sixth grade levels. His results showed a significant difference in reading achievement, as tested by the Iowa Basic Skills Test, in favour of the pupil in the non-graded plan.

Non-graded Classes in Reading

Pupils of either wide or narrow age span are assigned to classrooms with little regard for academic capability and are guided at their own rates. The age span in a non-graded class may be from one year to several and the mixing of several age levels has been shown to have academic value that permits present adjustment within a wide range of differences in social growth. Some pupils may take more time, some less, than the average to complete an ungraded block of learning, but progress is differentiated and continuous with no artificial end of the year. It must be noted, also, that *non-graded* means different things to different teachers; *e.g.,* one-third of the school systems responding to a National Education Association Survey (1965) reported that they were trying some kind of non-graded class organization. It must be noted that research on non-graded organization has produced conflicting results. Carbone (1961) for instance, found progress to be significantly greater in graded than in non-graded schools. In another study by Hopkins (1965, pp. 207-15) it was found that reading achievement was not significantly different between graded and non-graded schools but the teachers of the non-graded classes, on the whole, expressed more satisfaction.

Due to the conflicting evidence that was provided by research, the writer was discouraged from reporting it. The non-graded plan is to be recommended because it proposes to make differentiated progress the rule rather than the exception.

TABLE 8.8

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO SOCIO-ECONOMIC LEVEL AND TYPE OF CLASSROOM ORGANIZATION USED FOR READING

	SEL					
Type of Classroom Organization	Upper	S.E.	Middle	S.E.	Lower	S.E.
1. Self-Contained Classroom	42.01	± .49	38.69	± .32	39.28	± .28
2. Joplin-type	40.42	± 1.96	40.04	± 1.13	38.64	± .98
3. Within-grade grouping	39.37	± 1.51	35.62	± .91	27.20	± .71
4. Non-graded	60.86	± 3.08	59.81	± 2.19	53.47	± 1.04
5. Departmentalized and Other	51.01	± 2.27	45.16	± 1.48	42.15	± .97

Table 8.8 indicates mean reading achievement scores classified according to SEL and type of classroom organization used for reading. The table indicates that the pupils of the non-graded organization scored higher than pupils of other types of classroom organization. It must also be noted that the non-graded category represented a very small sample in each of the three SEL classifications. It is also of interest to note that in general, as is indicated by data in the table, the scores are of decreasing order from the upper SEL to the lower SEL except for lower SEL in level one of the type of classroom organization. This pattern was consistent in all types of classroom organization studied. It is worth noting that the most frequently used type of classroom organization was that of self-contained classroom and particularly at the lower SEL as the SE indicates. In addition, it should be mentioned that the scores of the upper SEL self-contained classroom, 42.01, the middle, 38.69 and the lower, 39.28 do not indicate such large variation of achievement as those of non-graded 60.86,

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59.81 and 53.47. The deviation of the mean scores for "within the grade grouping" was 39.37 for the upper SEL, for the middle 35.62, and for the lower 27.20. It is also worth noting that the least used type of classroom organization in all three SEL classifications was the non-graded as is indicated by the SE in each case. The most used type of classroom organization across all three SEL classifications was the self-contained classroom with a much higher use in the lower SEL than at any other level. The reader is cautioned that the teachers' concepts of non-gradedness could differ. It is advisable, before further generalizations be made on the subject, to conduct more rigorous research, not on the basis of the naive concept of whether gradedness or non-gradedness contributes to achievement but on the basis of what aspects of non-gradedness contribute in facilitating learning under certain conditions.

Kindergarten Experience

The analysis of variance for reading achievement scores classified according to number of pupils with kindergarten experience (KE) yielded a significant F value of 68.49 ($F = p < .01$), as shown in Table 8, Appendix III. Other highly significant interactions (.01 level) were with U/R and question 11, grade and question 11, and SEL and question 11. The interaction of sex and question 11 was significant at the .05 level. Other higher order interactions which were found to be significant are the following: U/R × Grade × Q11 (.01 level); Grade × Sex × Q11 (.01 level); U/R × Grade × Sex × Q11 (.01 level); U/R × Grade × SEL × Q11 (.01 level); Sex × SEL × Q11 (.05 level); and Grade × Sex × SEL × Q11 (.01 level). The relevant means of this analysis are presented in the latter part of the following section.

The study divided the pupils into three groups for this question, as follows:

level one —0 to 10 percent of pupils have KE, as reported by teacher
level two —11 to 60 percent of pupils have KE, as reported by teacher
level three—61 percent and/or more of pupils have KE, as reported by teacher.

TABLE 8.9

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO PERCENTAGE OF CLASS WITH KINDERGARTEN EXPERIENCE

Percent of Kindergarten	Mean Achievement	S.E.
1. 0 - 10%	39.15	± .12
2. 11 - 60%	40.12	± .15
3. Over 61%	41.26	± .11

Table 8.9 presents the class mean reading achievement scores for each of the levels of question 11. The pupils of the teachers who indicated that 61 percent and over of their class had KE had a higher class mean reading achievement score than those pupils whose teachers indicated that zero to 60 percent of their class had KE.

Various researchers have conducted studies to attempt to determine the effect of the length of schooling/entrance age factor upon reading achievement. Brzeinski (1964, pp. 16-21) conducted a study following pupils through kindergarten into grade one in order to determine the effects of pre-school reading instruction upon reading achievement. The pupils were divided into two groups in kindergarten, the control group following traditional kindergarten instruction and the experimental group utilizing approximately twenty minutes per day in beginning reading. In grade one these groups were further subdivided into four sections, producing combinations of those who had regular programs in both kindergarten and grade one (Group 1) ; those who had a regular program in kindergarten but an adjusted program in grade one (Group 2) ; those who had a research program in kindergarten but a regular grade one format (Group 3) ; and those who followed an adjusted format in both kindergarten and grade one (Group 4). The results indicated that Group 4, (took reading program in kindergarten and grade one) scored highest on the standardized tests used (States Primary and Advanced Primary) and that Group 3 (took reading program in kindergarten but a regular grade one program) scored next in line, indicating that the reading instruction in kindergarten provided them with effective skills for reading achievement in grade one. The final conclusion for this study would seem to be that pre-school reading training correlated positively to reading achievement. A study by Sutton (1969, p. 595) in which the progress of pupils in reading was followed through from kindergarten to grade three indicated results similar to those of Brzeinski. The main finding was that those pupils who had achieved a measure of reading ability in kindergarten had a continuing and increasing advantage over their classmates throughout the primary grades. Hillerich (1965, p. 312) used a five-year study to test the effectiveness of a formal program in pre-reading skills in kindergarten. The results published in his report indicate that one possibility exists that the more formal program in kindergarten may reduce differences in the reading achievement of boys and girls (see discussion of sex factor in Ch. 7). The pupils who had formal kindergarten training were better readers at the end of the first grade than those who did not have such training.

In a study conducted by Miller (1969, pp. 641-645) in which the mothers of three social classes (middle, upper-lower, and lower-lower) were interviewed in order to determine the effect of pre-reading experiences upon grade one achievement, the findings showed some minor conflicts. While pupils from the lower-lower class with little opportunity for pre-reading experience scored lower on the Metropolitan Readiness Tests, as predicted, when scores from the Stanford Achievement Test and Gilmore Oral Reading Test were correlated there was found to be no significant correlation in the lower groups. However, an analysis of the scores of the three social groups indicated significant differences : the middle class pupils with greatest pre-reading experience apparently were best prepared for school reading.

Hirst (1970, p. 547) challenges the assumption that school entrance age (Grade one) is so interwoven with reading success that it can be used as a predictor variable for academic success. Using a three-year longitudinal study involving at its inception three hundred kindergarten pupils from nine schools in Wyoming, Hirst successfully validated his hypothesis. His findings indicated that age was not a significant predictor variable for achievement in grades one and two; it was not significant in the

readiness test administered at the end of kindergarten; nor was age significant in the predictions of teachers. In this, Hirst's results would seem to agree with those found in the second phase of the Brzeinski study in which it was felt reading could be taught successfully when the pupil had gained the *mental* age of four and one-half years.

Ayers and Mason (1969, p. 435) conducted a study which may be worth noting at this point. They tested the differential effects of *Science: A Process Approach,* of the American Association for the Advancement of Science Program, on change in readiness test scores among kindergarten pupils. A comparison of the achievement gain scores for the experimental group (using science program) and control groups yielded a significant difference in favor of the experimental group on the Listening, Numbers, and Copying sub-tests and on the total test score. Again, there is potential for further research here as present research, including this study, points favorably towards pre-school education in specialized fields.

When the results of these previously cited studies are compared with the present one it may be seen that, in general, the findings of the present study agree with those reported by Brzeinski and Sutton, and, to some extent, with those of Hillerich (result No. 2). When the achievement scores (measured by the SRAT Primary I and II and Intermediate I) were compared with the questionnaire results, the pupils of all grades (one, two, three and six) scored consistently higher in level three than in levels one and two, (although pupils of grades one and two had the same mean reading achievement score in levels two and three—1.83—, more faith should be given to the mean reading achievement score of level three as it represents a larger sample (SE ±.19 compared to ±.30) as shown in Table 8.10). Similarly, pupils of level three scored consistently higher than those of levels one and two. The largest difference in the mean reading achievement scores occurred in grade two between levels one and two of KE.

TABLE 8.10

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO GRADE AND PERCENTAGE OF CLASS WITH KINDERGARTEN EXPERIENCE

	Percentage of Class with Kindergarten Experience					
	1		2		3	
		S.E.		S.E.		S.E.
Grade 1	1.78	± .27	1.83	± .30	1.83	± .19
Grade 2	2.85	± .24	3.06	± .31	3.08	± .20
Grade 3	3.92	± .23	3.94	± .29	4.06	± .23
Grade 6	7.09	± .23	7.19	± .27	7.51	± .32

TABLE 8.11

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO SOCIO-ECONOMIC LEVEL AND PERCENTAGE OF CLASS WITH KINDERGARTEN EXPERIENCE

	Percentage of Class with Kindergarten Experience					
	1		2		3	
SEL		S.E.		S.E.		S.E.
Upper	41.51	± .53	43.46	± .49	44.69	± .29
Middle	39.43	± .27	40.40	± .29	40.89	± .21
Lower	36.53	± .14	36.49	± .18	38.19	± .15

With regard to the interaction of SEL and KE, Table 8.11, indicates the pattern established for reading achievement and KE. The higher the level of KE the higher the reading achievement score, with the exception of the lower SEL where pupils of level two of KE scored slightly lower than those of level one of KE. The largest mean reading achievement difference occurred in the upper SEL between levels one and two of KE.

TABLE 8.12

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO SEX, SOCIO-ECONOMIC LEVEL AND PERCENTAGE OF CLASS WITH KINDERGARTEN EXPERIENCE

Percentage of Class with Kindergarten Experience

1

SEL	Male	S.E.	Female	S.E.
Upper	40.47	± .71	42.54	± .78
Middle	37.98	± .39	40.88	± .39
Lower	35.61	± .19	37.45	± .20

2

SEL	Male	S.E.	Female	S.E.
Upper	41.99	± .70	44.94	± .69
Middle	40.06	± .40	40.74	± .41
Lower	35.38	± .25	37.60	± .26

3

SEL	Male	S.E.	Female	S.E.
Upper	44.32	± .42	45.06	± .41
Middle	39.65	± .30	42.14	± .30
Lower	37.71	± .20	38.67	± .21

When sex, SEL, and KE were interacted, as shown in Table 8.12, the same general pattern was established (with the exception of males at the middle SEL, level three of KE) with level three of KE, upper class, showing the highest achievement scores. This would seem to agree with Miller's findings. It is significant to note from this table that females consistently scored higher than males in all SEL and that their pattern of scoring was in proportion to the percentage of class having KE. This would seem to refute Hillerich's suggestion that a formal kindergarten program would reduce the differences in achievement between males and females. However, the present study did not record the establishment of a formal reading program in kindergarten, but only the percentage of pupils having KE. It must be noted, however, that kindergarten classes may vary greatly with respect to kinds of materials covered and methods of presentation, and kindergarten may or may not facilitate the development of reading skills for the grade one pupil. As Hillerich based his suggestion for reduction in differences between the sexes on the establishment of a kindergarten reading program, this may be a factor to be checked in future research.

Time Set Aside for Reading Program

The analysis of variance for reading achievement scores classified according to the amount of time per week set aside for the reading program produced a significant F value of 30.39 ($F = p < .01$), as shown in Table 9, Appendix III. The levels of question seven had three significant interactions (.01 level), one with U/R and question seven, two with grade and question seven, and SEL and question seven. The interaction of question seven and sex was not significant. Other higher order interactions which were found to be significant are the following: U/R × Grade × Q7 (.01 level); U/R × Sex × Q7 (.01 level); Grade × SEL × Q7 (.01 level); and Sex × SEL × Q7 (.01 level). The relevant means of this analysis are presented in the latter parts of the following section.

For this question the study divided pupils into four levels, as follows:

level one —20 percent or less to 30 percent of time set aside for reading program
level two —31 percent to 40 percent of time....
level three—41 percent to 50 percent of time....
level four —more than 50 percent....

TABLE 8.13

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO TIME SET APART FOR READING PROGRAM

Time Set Apart for Reading Program	Mean Achievement	S.E.
1. 20% or less - 30%	40.22	± .13
2. 31% - 40%	38.94	± .15
3. 41% - 50%	38.72	± .13
4. 50% +	40.18	± .16

In terms of hours this means that level one (assuming an average of 15 percent per week) would receive about .82 of an hour or approximately 49 minutes per day in a five and a half (5½) hour day on reading instruction; level two would receive a minimum of 1.70 hours per day on reading instruction; and level three would receive a minimum of 2.80 hours per day on reading instruction. The results of the present study prove quite interesting in view of the time allotments established for each level.

The results of the present study, as indicated in Table 8.13, show that when the amount of time set aside for the reading program was compared with reading achievement, level one, with the lowest amount of time per week spent on basic reading instruction, scored higher in achievement with a class mean score of 40.22 than other groups. Level four, with the highest percent of time followed with a score of 40.18—there being only .04 difference between levels one and four. Level two was in third place with 38.94 and level three was last with 38.72. There is an interesting pattern to achievement scores observable here, decreasing from levels one to three then increasing markedly for level four.

It appears that there is only a limited amount of research available on the problem of how much time in school is spent upon reading instruction.

The difficulty here is that in elementary school there are related activities involving reading; hence, to determine the *exact* time spent in reading *instruction* becomes a problem.

Brekke (1963, pp. 234-237) and Jarvis (1965, pp. 201-204), as mentioned before, both conducted studies involving time and reading instruction. The results of Brekke's study prompted him to recommend that in the primary grades less time be spent in reading instruction and more in other reading activities, and vice versa for the intermediate grades as compared with the amount of time then spent on these two areas.

Jarvis (1965) studied grades four, five and six in an attempt to determine if there were a significant relationship between time allotment and pupil achievement in the subject areas of reading, English mechanics and spelling. He noted that classes in reading which were more than fifty minutes (60-78 minutes) did not, in general, yield enough significant pupil achievement to warrant them. Higher achievement seemed to occur in the shorter instructional periods (40-50 minutes).

TABLE 8.14

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO URBAN/RURAL AND TIME SET APART FOR READING PROGRAM

	Time Set Apart for Reading Program							
	1		2		3		4	
		S.E.		S.E.		S.E.		S.E.
Urban.....	41.09	± .19	39.24	± .22	39.76	± .19	41.15	± .23
Rural.....	39.34	± .18	38.63	± .20	37.68	± .18	39.21	± .23

The pattern is repeated in Table 8.14 for the rural section when the U/R classification was correlated to time set aside. The pattern was retrogressive from levels one to three with, again, a notable increase for level four. In the urban section there was again a large drop in mean score from levels one to two, but from level two there was a progressive development to level four which scored higher (41.15) than level one (41.09). Again, however, the difference between levels one and four was very small (.06).

When all grades were compared to time allotment, similar progressive and retrogressive patterns were found in the scoring. (For the purposes of this study it must be assumed that the actual time allotments, although indicated by teachers as percentages, were approximately equivalent for all four grades tested). The scores for grade one, as shown in Table 8.15, indicated a progressive increase from level one to three with level three and four achieving the same mean scores. Grade two scores showed a retrogressive trend, or decrease from level one to three with an upward trend from level three to four. However, the difference between the last two scores was slight (.02), and in grade two the higher achievement would seem to occur with the least time spent. The same can be said for grade three except that the scores steadily increased from level two to four, although level four still did not register as high a mean score as level one. Grade six showed the same retrogressive pattern noted for grade two with the exception that the difference between level three and four was much larger (.56) than this difference for grade two (.02) and that level four

scored higher than level one. These scores would appear to indicate that for grades one and six, the *greater* the time spent on reading instruction the higher the achievement, while for grades two and three, the *less* time spent on reading instruction the higher the achievement.

TABLE 8.15

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO GRADE AND TIME SET APART FOR READING PROGRAM

	Time Set Apart for Reading Program							
	1	S.E.	2	S.E.	3	S.E.	4	S.E.
Grade 1	1.67	± .57	1.80	± .33	1.85	± .22	1.85	± .24
Grade 2	3.15	± .37	3.06	± .27	2.93	± .23	2.95	± .28
Grade 3	4.08	± .28	3.83	± .25	3.98	± .24	3.99	± .41
Grade 6	7.18	± .17	6.86	± .37	6.70	± .67	7.26	± 1.01

TABLE 8.16

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO URBAN/RURAL, GRADE AND TIME SET APART FOR READING PROGRAM

	Time Set Apart for Reading Program 1				Time Set Apart for Reading Program 2			
	Urban	S.E.	Rural	S.E.	Urban	S.E.	Rural	S.E.
Grade 1	1.56	± 1.25	1.78	± .64	1.86	± .55	1.75	± .41
Grade 2	3.25	± .55	3.05	± .50	3.08	± .36	3.04	± .42
Grade 3	4.27	± .41	3.88	± .39	3.82	± .38	3.83	± .34
Grade 6	7.34	± .24	7.01	± .25	6.92	± .57	6.81	± .50

	Time Set Apart for Reading Program 3				Time Set Apart for Reading Program 4			
	Urban	S.E.	Rural	S.E.	Urban	S.E.	Rural	S.E.
Grade 1	1.84	± .30	1.87	± .32	1.87	± .33	1.83	± .34
Grade 2	2.96	± .37	2.91	± .30	3.14	± .41	2.75	± .39
Grade 3	4.10	± .37	3.86	± .32	4.15	± .55	3.83	± .61
Grade 6	6.98	± .95	6.42	± .94	7.28	± 1.52	7.25	± 1.35

When U/R, grade and time allotment were compared, as shown by Table 8.16, the scores for grade one in the urban sample increased from lower to higher (except for level three) with level four still scoring higher. The scores for the rural section of grade one also showed an increasing pattern with level three scoring highest. As level three did not score highest in any other of the time allotment tables, this appears to be a single exception. The system of retrogressive/progressive development was continued through the other three levels. With the urban sample in grade two, the pattern showed a decrease from level one to three with an increase in level four, although scores for level four were not higher than those for level one. The rural pattern of grade two showed a continuously decreas-

ing trend from level one to four with the difference between levels one and four at .30. Grade three urban results indicated a sharp decrease between level one and level two with a steady increase in mean scores from level two to four. However, once again, level four did not achieve as high as level one. The pupils from the rural classification for grade three showed an irregular mean achievement scoring range with level one (3.88) scoring highest and levels two and four scoring the same (3.83) and lower. The urban sample scores for grade six again dropped from 7.34 which was the highest score at level one to level two (6.92) then climbed steadily to level four at 7.28. The rural sample showed a steady decrease to level three with a gain of .83 from level three to level four.

The results of this correlation (U/R, grade and time allotment) appear to concur with the results previously described for the other variables correlated with the time factor.

TABLE 8.17

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO SOCIO-ECONOMIC LEVEL AND TIME SET APART FOR READING PROGRAM

	Time Set Apart for Reading Program							
	1	S.E.	2	S.E.	3	S.E.	4	S.E.
Upper.....	43.00	± .41	41.00	± .47	41.48	± .41	45.05	± .55
Middle.....	40.20	± .27	39.78	± .29	38.92	± .26	40.28	± .35
Lower.....	37.45	± .17	36.02	± .18	35.76	± .16	35.20	± .20

The grouping of SEL with time allotment as shown in Table 8.17, repeated the pattern observed for the grades three and six urban classification in the upper and middle classes—a sharp decrease between levels one and two, and a progressive increase to level four, except in "middle" where a decrease was noted from level two to level three. Level four mean achievement scores for the upper class were 2.05 higher than those for level one and in the middle class level four scored .08 higher than level one. The results from the lower class, however, indicated a progressive decrease from levels one to four.

In general, the results for the correlation of time allotment with achievement would seem to indicate that pupils achieve best in reading with smaller amounts of time spent on reading instruction *per se*. This would appear to agree with the results reported by both Brekke and Jarvis.

But this study does not determine the best allotment of time per day to be spent on reading instruction—that is, whether five 10-minute instructional periods per week should be used or one 50-minute period, etc.—, but that the level of approximately 55 minutes of reading instruction per week produced the best results as was indicated by the analysis. Thus, time allotment appears to have a definite correlation to reading achievement. More experimental research—preferably conducted right in the classroom—is needed in this area in distinguishing reading *per se,* and reading being done in other subject areas.

Questions 20, 21 and 22

Reading Materials

This section incorporates the results of the analyses of variance with reference to questions 20, 21 and 22 of the questionnaire:

(1) question 20, "Indicate the PRINCIPAL TYPE of materials you use in your present class for Basic Instruction."
(2) question 21, "If you use a BASAL READER, which of these series is used predominantly for your present class?"
(3) question 22, "Which ONE of the following SUPPLEMENTARY READING materials do you use MOST FREQUENTLY in your class?"

Instructional materials such as text books, a library and other school equipment influence the learning environment of pupils. It is those materials, through their exercises and presentations of content, that affect the learning activity of the pupils.

Question 20 of the questionnaire refers to the *principal type of materials* used in the classroom *for basic instruction;* question 21 refers to the *basal readers* used predominantly in the classroom; and question 22 refers to the *supplementary reading materials* used most frequently in the classroom.

The analysis of variance for reading achievement scores classified according to question 20—principal types of materials used for basic reading instruction—yielded a significant F value of 18.33 ($F = p < .01$) as shown in Table 10, Appendix III. Question 20 interacted significantly (.01 level) with U/R, grade, sex and SEL. Other higher order interactions which were found to be significant are the following: U/R × Grade × Q20 (.01 level); Grade × Sex × Q20 (.01 level); Grade × SEL × Q20 (.01 level); and Sex × SEL × Q20 (.05 level).

The analysis of variance for reading achievement scores classified according to question 21—basal readers predominantly used in the classroom—yielded a non-significant F value as shown in Table 11, Appendix III. However, two interactions were significant (.05 level) with grade and levels of question 21, and SEL and question 21. One higher order interaction was significant: Grade × Sex × Q21 (.05 level).

The analysis for variance for reading achievement scores classified according to question 22—type of supplementary reading materials most frequently used in the classroom—yielded a highly significant F value of 25.08 ($F = p < .01$) as shown in Table 12, Appendix III. Two significant interactions (.01 level) were U/R and levels of question 22, and grade and levels of question 22. The interactions between sex and levels of question 22 and between SEL and levels of question 22 were not significant. Higher order interactions which were found to be significant are the following: U/R × Grade × Q22 (.01 level); U/R × Sex × Q22 (.01 level); U/R × SEL × Q22 (.01 level); Grade × SEL × Q22 (.01 level); and U/R × Grade × SEL × Q22 (.01 level). The relevant means of the above analyses are presented in the latter part of the following section.

Barton and Wilder (1964) found that 80 percent of the teachers who considered themselves professionals preferred basal readers, manuals and workbooks and other materials prepared by experts. At the same time, 37 percent of the experts felt that teachers should use basal readers and workbooks less.

Wilson and Harrison (1963) conducted research to determine change in selected reading skills such as vocabulary growth and reading comprehension by comparing readers using a basal text in a conventional grouping arrangement with comparable pupils employing the individualized reading plan. The instrument used in this study was the California Reading Test and the hypothesis that grade six pupils do not make greater gains in vocabulary and comprehension during their school year under an individualized plan than those pupils in a group reading procedure was not accepted.

It is of interest to note here that approximately 18,000 pupils in Manitoba in grades one, two, three and six used basal readers only or basal readers with supplementary materials. Only 5,222 pupils used trade books, programmed materials, pupil-composed materials or a combination of these materials. These results reveal the faith that teachers put in published materials or, as Robinson (1968, p. 339) put it, "Even though teachers express some dissatisfaction with these materials, they continue to rely on them."

With reference to question 20, the study divided these scores of pupils into three levels, as follows:

level one —basal readers only
level two —basal readers with supplementary materials
level three—trade books, programmed materials, pupil-composed materials, combinations of above, or other.

TABLE 8.18

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO PRINCIPAL TYPES OF MATERIALS USED FOR BASIC READING INSTRUCTION

Principal Types of Materials Used for Basic Reading Instruction	Mean Achievement	S.E.
1. Basal Readers Only	38.83	± .16
2. Basal Readers with Supplementary Materials	39.86	± .09
3. Trade Books, Programmed Materials, Pupil-Composed Materials, Combinations of Above, or Other	39.86	± .15

Table 8.18 indicates the class mean reading achievement scores of those pupils classified according to the levels of question 20, that is, according to (1) basal readers only, (2) basal readers with supplementary materials, and (3) trade books, programmed materials, pupil-composed materials, combinations of above, or other. Pupils who used as principal types of materials in the classroom the basal readers with supplementary materials, and pupils who used trade books, programmed materials, pupil-composed materials, combinations of above, or other, had the same class mean reading achievement score. It is worth noting here that the score 39.86 of the second level of question 20 should be given more confidence as it was drawn from a larger sample; *i.e.*, more classes in the study used basal readers with supplementary materials than any other type of reading materials. The higher achievement of urban pupils with reference to types of materials used in the classroom is shown in Table 8.19. This table shows also that level two of question 20 favors urban pupils while level three of

question 20 favors rural pupils. The largest difference between U/R exists in level two of question 20.

The difference in achievement level between grades is very slight as can be seen from Table 8.20. Level two of question 20 favors grade one and grade two while level one of question 20 favors grade three, and level three of question 20 favors grade six.

TABLE 8.19

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO URBAN/RURAL AND PRINCIPAL TYPES OF MATERIALS USED FOR BASIC READING INSTRUCTION

	Principal Types of Materials Used for Basic Reading Instruction					
	1	S.E.	2	S.E.	3	S.E.
Urban	39.17	± .26	40.98	± .13	40.56	± .22
Rural	38.49	± .21	38.74	± .13	39.16	± .21

TABLE 8.20

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO GRADE AND PRINCIPAL TYPES OF MATERIALS USED FOR BASIC READING INSTRUCTION

	Principal Types of Materials Used for Basic Reading Instruction					
	1	S.E.	2	S.E.	3	S.E.
Grade 1	1.69	± .35	1.85	± .17	1.81	± .32
Grade 2	2.99	± .31	3.03	± .18	2.93	± .31
Grade 3	3.97	± .27	3.96	± .19	3.96	± .33
Grade 6	6.86	± .44	7.09	± .20	7.23	± .27

With reference to question 21—that is, basal readers predominantly used in the classroom—the study divided the scores of pupils into two levels as follows:

level one —Houghton Mifflin (Thomas Nelson Series), Copp-Clark, Lippincott, and Winston.

level two —Ginn and Company, Gage, MacMillan, Collier-MacMillan (Harris Clark), and other.

Although the main effects were non-significant for this analysis of variance, two interactions were significant at the .05 level: grade and question 21, and SEL and question 21. Table 8.21 indicates the class mean reading achievement scores of those pupils classified according to the level of question 21, that is, according to (1) Houghton Mifflin (Thomas Nelson Series), Copp-Clark, Lippincott, and Winston; and (2) Ginn and Company, Gage, MacMillan, Collier-MacMillan (Harris Clark), and other. Approximately 18,000 pupils who used as basal readers predominantly Houghton Mifflin (Thomas Nelson Series), Copp-Clark, Lippincott, and Winston had a class mean reading achievement of 39.90 while approximately 2,500 pupils who used as basal readers predominantly Ginn and Company, Gage, MacMillan, Collier-MacMillan (Harris Clark) and others had a class mean reading achievement of 39.93.

TABLE 8.21

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO BASAL READER PREDOMINANTLY USED

Basal Reader Predominantly Used	Mean Achievement	S.E.
1. Houghton Mifflin (Thomas Nelson Series), Copp-Clark, Lippincott, Winston	39.90	± .08
2. Ginn & Company, Gage, MacMillan, Collier-MacMillan (Harris Clark), Other	39.93	± .22

TABLE 8.22

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO GRADE AND BASAL READER PREDOMINANTLY USED

	Basal Reader Predominantly Used			
	1		2	
		S.E.		S.E.
Grade 1	18.47	± .17	18.09	± .29
Grade 2	30.20	± .15	28.98	± .58
Grade 3	39.67	± .16	40.50	± .64
Grade 6	71.25	± .17	72.15	± .50

Table 8 22 indicates the mean reading achievement scores classified according to grade and basal readers predominantly used in the classroom. This table indicates that level one of question 21 contributed to a higher mean reading achievement score for pupils of grade one and grade two, while level two of question 21 contributed to a higher mean reading achievement score for pupils of grades three and six.

TABLE 8.23

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO SOCIO-ECONOMIC LEVEL AND BASAL READER PREDOMINANTLY USED

	Basal Reader Predominantly Used			
	1		2	
SEL		S.E.		S.E.
Upper	43.11	± .25	42.10	± .62
Middle	39.98	± .16	40.50	± .46
Lower	36.10	± .10	37.19	± .27

Table 8.23 indicates the mean reading achievement scores of pupils classified according to SEL and basal readers predominantly used in the classroom. The table shows that the mean reading achievement of pupils coming from a higher SEL was higher than the mean reading achievement of the pupils who came from a lower SEL with reference to the levels of question 21. In addition, the table indicates that levels one and two of question 21 contribute to a higher mean reading achievement for the upper SEL classification. The largest difference between the levels of SEL was noted in level one of question 21.

Of the reading materials that are used in those grades in the study, one could say that a very high percentage (85.3 percent) of pupils in the elementary schools in Manitoba use Copp-Clark. No research appears to have been done in Canada on reading materials intended for pupils whose first language is not English. One wonders at the appropriateness of present reading materials in vocabulary and structure for French-speaking pupils, German-speaking pupils, Eskimo-speaking pupils, or Indian-speaking pupils who are learning to read in these grades. It is worth noting here that in the OCI study, where the teachers rated different types of teaching materials, the materials that were rated the highest were more than one basal reading series at different grade levels and the manuals that accompanied basal reading series, while the materials that rated the lowest were the single basal reading series.

With reference to question 22, the study divided the scores of pupils into four levels as follows:

level one —skills supplement (skill—text workbooks, RD skill builders, etc.);

level two —teacher-made duplicated materials;

level three—self-instructional materials such as SRA Lab, and trade books (library books);

level four —programmed material, A-V aids (slides, film strips, etc.), commercially duplicated materials, supplementary phonics program, and others.

TABLE 8.24

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO TYPE OF SUPPLEMENTARY READING MATERIALS MOST FREQUENTLY USED

Type of Supplementary Reading Materials Most Frequently Used	Mean Achievement	S.E.
1. Skills Supplement	40.29	± .18
2. Teacher-made Duplicated Materials	38.70	± .11
3. Self-Instructional Materials and Trade Books (Library Books)	40.42	± .15
4. Programmed Material, A-V Aids, Commercially Duplicated Materials, Supplementary Phonics program, Other	39.60	± .18

Table 8.24 indicates the class mean reading achievement of those pupils according to the levels of supplementary reading materials most frequently used. The highest class mean reading score (40.42) was achieved by pupils whose teachers indicated that they use in their classroom self-instructional materials and trade books (library books). The second highest (40.29) was achieved by pupils whose teachers indicated that they use skills supplement in their classrooms. The third highest score (39.60) was achieved by pupils whose teachers indicated that they used programmed materials, A-V aids, commercially duplicated materials, supplementary phonics program and others in their classroom. It is worth noting here that approximately 9,000 pupils had a class mean reading achievement of 38.70, that is, the lowest of the four levels. The section on teachers' experience and teachers' academic standing which will be discussed later could provide a partial explanation of this phenomenon. The second level

of question 22 indicates the highest frequency of teachers (approximately 39 percent) using this type of material, (see Ch. 4). From these results one can see that, although the largest number of teachers are using teacher-made duplicated materials predominantly, their effects are not as adequate as those noted in other levels of question 22. Similar results can be seen in Table 8.25 where the mean reading achievement scores have been classified according to U/R and type of supplementary reading materials most frequently used in the classroom. Here again, level two of question 22 has contributed to a lower mean reading achievement score than any other level of the same question. It is of interest to note here that while in the urban areas the skills supplement has contributed to the high mean reading achievement score (41.64), in the rural areas the highest mean reading achievement score (39.83) was contributed by the self-instructional materials such as SRA Lab and the trade books (library books). One is not surprised to see that in the rural areas self-instructional materials contribute to a higher achievement than any other type of materials. Self-instructional materials seem to compensate for the lack of library facilities and the lower academic qualifications of teachers in rural areas in meeting the demands for higher achievement of pupils. The largest difference between levels of question 22 was noted between one and two in the urban.

TABLE 8.25

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO URBAN/RURAL AND TYPE OF SUPPLEMENTARY READING MATERIALS MOST FREQUENTLY USED

Type of Supplementary Reading Materials Most Frequently Used	Urban	S.E.	Rural	S.E.
1.	41.64	± .29	38.93	± .23
2.	39.70	± .17	37.71	± .16
3.	41.02	± .19	39.83	± .22
4.	40.12	± .28	39.07	± .24

TABLE 8.26

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO GRADE AND TYPE OF SUPPLEMENTARY READING MATERIALS MOST FREQUENTLY USED

	Type of Supplementary Reading Materials Most Frequently Used							
	1	S.E.	2	S.E.	3	S.E.	4	S.E.
Grade 1	1.85	± .52	1.79	± .19	1.83	± .40	1.87	± .30
Grade 2	3.09	± .46	3.02	± .20	3.05	± .31	2.90	± .33
Grade 3	3.94	± .35	3.85	± .24	4.10	± .28	3.93	± .34
Grade 6	7.22	± .27	6.80	± .39	7.17	± .23	7.12	± .63

Table 8.26 indicates the mean reading achievement scores classified according to grade and type of supplementary reading materials most frequently used in the classroom. In grade one the highest mean reading

score achieved by pupils was in level four, that is, teachers who used programmed material, A-V aids, commercially duplicated materials, supplementary phonics program and others. It is also worth noting that level one—skill supplement—and level three—self-instructional materials and trade books (library books)—were not far behind. Similarly, for grade two but not for any other of the levels of question 22, the skills supplement has contributed to higher mean reading achievement scores. In grade three, the self-instructional materials and trade books level of question 22 contributed higher mean reading achievement scores for the pupils, while in grade six, the skills supplement again contributed to higher mean reading achievement scores than all other levels in question 22.

Although the majority of teachers (39.3 percent) who responded to that particular question indicated that they used teacher-made duplicated materials in their classroom and that approximately 9,000 pupils of the sample were taught with these materials, the mean reading achievement scores of these pupils were not higher than those of pupils whose teachers reported using other materials. Although teacher-made duplicated materials have the advantage of being tailor-made for the pupils, if they are not adequately and skilfully prepared by the teachers, their contribution to achievement is very slight. On the basis of the results of this study, teacher-made materials were not as effective as other materials.

School Library

The analysis of variance for reading achievement scores classified according to the number of books existing in the school library as reported by teachers in the study yielded a non-significant F value as shown in Table 13 of Appendix III. However, this analysis produced one significant interaction: grade and levels of question 31 ($F = p < .01$ level). Relevant means of this analysis will be discussed in the following sections. Other higher order interactions which were found to be significant in the analysis are the following: U/R × Grade × Q21 (.01 level); U/R × SEL × Q31 (.01 level); and U/R × Sex × SEL × Q31 (.01 level).

The analysis for reading achievement scores classified according to question 31 of the questionnaire—books in school library—divided the scores of pupils into three levels as follows:

level one —0 to 500 books;
level two —501 to 2,000 books;
level three—2,001 books and over.

TABLE 8.27

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO NUMBER OF BOOKS IN SCHOOL LIBRARY

Number of Books in School Library	Mean Achievement	S.E.
1.	39.41	± .32
2.	39.96	± .20
3.	39.75	± .17

Table 8.27 indicates the class mean reading achievement scores classified according to the three levels of question 31, that is, according to

(1) 0 to 500 books, (2) 501 to 2,000 books and (3) 2,001 books and over. According to the analysis of variance, this main effect is non-significant as can be seen from the differences between the means of the three levels. It is worth noting here that the approximately 4,000 pupils whose teachers indicated that their school library contains 2,001 books and over achieved a class mean reading achievement score of 39.75 which is the second highest, following level two. The highest class mean reading achievement scores were achieved by pupils whose teachers indicated that their school library had between 501 and 2,000 books.

TABLE 8.28

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO GRADE AND NUMBER OF BOOKS IN SCHOOL LIBRARY

	Number of Books in School Library					
	Level 1 0-500 Books	S.E.	Level 2 501-2,000 Books	S.E.	Level 3 2,000 or More	S.E.
Grade 1	19.15	± .75	17.53	± .41	17.73	± .34
Grade 2	30.06	± .54	30.04	± .40	29.71	± .38
Grade 3	38.11	± .62	39.51	± .41	40.03	± .33
Grade 6	70.31	± .73	72.74	± .40	71.54	± .30

The data of Table 8.28 show the mean reading achievement scores classified according to grade and number of books in school library. For grades one and two, the high mean reading achievement score was recorded by pupils whose teachers reported that in their school library, they had between 0 and 500 books, for grade three over 2,000 books, and for grade six, between 501 and 2,000 books. It is worth noting from this table that a great number of teachers (judging from the standard error) indicated that over 2,000 books are available in their school libraries. In analysing this question regarding the relationship between library facilities and books, and reading achievement, the writer suggests more research is needed into the use of the books by the student rather than the mere number of books in the libraries. The purpose of the study was to draw a base line for further research in the areas of each of the questions that this study raised.

Teachers Reporting Pupils Reading Below Potential Level

The analysis of reading achievement scores classified according to the report of the teachers in the study with reference to their pupils reading below their potential level yielded a significant F value of 215.88 ($F = p < .01$) as shown in Table 14, Appendix III. Other significant (.01 level) interactions with question 10 occurred with U/R, and grade. Higher order interactions which were found to be significant are the following: U/R × Grade × Q10 (.01 level); and U/R × Grade × Sex × Q10 (.01 level).

The teachers were asked to respond to the question "What percentage of your children are reading below their potential level?". They were offered six alternatives as follows: (1) 0-10 percent; (2) 11-20 percent; (3) 21-30 percent; (4) 31-40 percent; (5) 41-50 percent; and (6) 51

percent and over. For the purpose of convenience, the following four levels were used in the analysis: (1) 0-10 percent; (2) 11-20 percent; (3) 21-30 percent; and (4) 31 percent and over.

TABLE 8.29

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO PERCENTAGE OF PUPILS READING BELOW POTENTIAL LEVEL AS REPORTED BY THEIR TEACHERS

Percentage of Pupils Reading Below Their Potential Level as Reported by Their Teachers	Mean Achievement	S.E.
1. 0 - 10%	41.66	± .11
2. 11 - 20%	39.67	± .15
3. 21 - 30%	38.29	± .20
4. 31% +	35.94	± .18

Table 8.29 indicates the class mean reading achievement scores of those pupils whose teachers reported that 0-10 percent, 11-20 percent, 21-30 percent, 31 percent and over, of their pupils read below their potential level. For example, approximately 10,000 pupils whose teachers reported that a maximum of 10 percent read below potential level, had a class mean reading achievement of 41.66, and this was the highest class mean reading achievement of all four levels of question 31. For approximately 3,000 pupils whose teachers reported that 31 percent and over of their class read below their potential level, the class mean reading achievement was 35.94 which was the lowest of the four levels of question 31. It is noteworthy here that the perception of the teachers with reference to pupils reading below their potential level was in accordance with the reading achievement scores of their pupils.

TABLE 8.30

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO URBAN/RURAL AND PERCENTAGE OF PUPILS READING BELOW POTENTIAL LEVEL AS REPORTED BY THEIR TEACHERS

	Percentage of Pupils Reading Below Their Potential as Reported by Their Teachers							
	1	S.E.	2	S.E.	3	S.E.	4	S.E.
Urban	42.64	± .14	40.17	± .23	37.58	± .34	36.52	± .26
Rural	40.68	± .15	39.18	± .20	39.01	± .25	35.36	± .25

Table 8.30 shows the mean reading achievement scores of pupils classified according to U/R and the four levels of question 10. The decreasing order of the mean reading achievement scores from level one of question 10 to level four indicates that teachers of both urban and rural pupils responded, in general, with consistency to this question. The table also indicates that, although more teachers in rural schools indicated that about 21 to 30 percent of their pupils read below their potential level, their pupils had a higher mean reading achievement score (39.01) than the corresponding score (37.58) of the pupils of the urban schools. The

largest difference between levels of question 10 was observed between levels two and three in the urban.

TABLE 8.31

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO GRADE AND PERCENTAGE OF PUPILS READING BELOW POTENTIAL LEVEL AS REPORTED BY THEIR TEACHERS

	Percentage of Pupils Reading Below Their Potential Level as Reported by Their Teachers							
	Level 1	S.E.	Level 2	S.E.	Level 3	S.E.	Level 4	S.E.
Grade 1	1.85	± .18	1.79	± .31	1.76	± .48	1.58	± .54
Grade 2	3.13	± .19	2.86	± .33	2.84	± .41	2.53	± .38
Grade 3	4.11	± .21	3.93	± .29	3.74	± .37	3.74	± .35
Grade 6	7.55	± .30	7.26	± .29	6.96	± .38	6.51	± .28

Table 8.31 indicates the mean reading achievement scores of pupils whose teachers indicated that their classes read a certain percentage below their potential level. The decreasing mean reading achievement for each of the grades and each of the levels of question 10 is consistent. The largest difference for each of the grades and question 10 was found to be: for grade one between levels three and four; for grade two between levels one and two; for grade three between levels two and three; and for grade six between levels three and four.

Although this analysis was based on the response of teachers and this response was based on the *average* of their class, it could be said that, on the average, the achievement was commensurate with the teachers' estimate of the percentage of children reading below their potential level.

COURSES IN READING TAKEN BY THE TEACHER

The analysis for reading achievement scores classified according to the kind of courses that teachers have taken in reading during their teacher training yielded a highly significant F value of 50.04 ($F = p < .01$) as shown in Table 15, Appendix III. Question two of the questionnaire interacted significantly (.01 level) with grade and sex. The interactions with U/R and SEL were not significant. Other higher order interactions which were found to be significant are the following: U/R × Grade × Q2 (.01 level); Grade × Sex × Q2 (.05 level); U/R × Grade × Sex × Q2 (.01 level); Grade × SEL × Q2 (.05 level); and U/R × Sex × SEL × Q2 (.05 level).

The study divided the pupils' scores into four levels for the question as follows:

level one —those pupils whose teachers had a primary methods course;

level two —those pupils whose teachers had a language arts course;

level three—those pupils whose teachers had a course in reading;

level four —those pupils whose teachers had a course in primary methods and reading.

TABLE 8.32

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO TEACHERS' READING TRAINING

Teachers' Reading Training	Mean Achievement	S.E.
1. Course in Primary Methods	40.31	± .14
2. Course in Language Arts	37.92	± .21
3. Course in Reading	40.74	± .22
4. Course in Primary Methods and Reading	39.86	± .11

The data of Table 8.32 show class mean reading achievement scores classified according to question two. The highest mean reading score was achieved by pupils whose teachers had a course in reading. Second highest score was associated with a course in primary methods, the third highest with a course in primary methods and reading, the lowest with a course in language arts only. It is worth noting that approximately 10,000 students whose teachers had a course in primary methods and reading achieved the third highest class mean reading achievement score (39.86).

Research has indicated that, in general, teachers are not being adequately prepared to teach reading, either in training institutions or in post-training sessions. Austin, *et al.*, (1961) in a study of 371 training institutions in the United States, found that only 100 offered a secondary reading methods course (*i.e.*, in addition to basic courses such as primary methods, language arts) and of these only 28 made such a course compulsory. The report recommended that there be a course in reading as such, equivalent to at least a three-hour semester course or half a course for all prospective elementary school teachers. Austin and Coleman (1963), in a study of 1,023 school systems in the United States, found that the majority of teachers did not consider their teacher preparation in reading adequate.

TABLE 8.33

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO GRADE AND TEACHERS' READING TRAINING

	Teachers' Reading Training							
	1		2		3		4	
		S.E.		S.E.		S.E.		S.E.
Grade 1	1.79	± .26	1.67	± .54	1.82	± .49	1.86	± .21
Grade 2	3.07	± .27	2.81	± .46	3.05	± .42	2.96	± .22
Grade 3	4.06	± .30	3.79	± .44	4.03	± .45	3.95	± .20
Grade 6	7.18	± .34	6.88	± .33	7.37	± .38	7.15	± .25

Table 8.33 indicates the mean reading achievement scores of those pupils of the four grades whose teachers had courses in reading classified according to the levels of question two. In grade one the highest mean reading achievement score (1.86) was marked by pupils whose teachers had a course in primary methods and reading. The second highest mean reading achievement score (1.82) was marked by pupils whose teachers had a course in reading. For grades two and three, the highest mean reading scores were marked by pupils whose teachers had a primary methods course. The second highest in both grades was achieved by

pupils whose teachers had a course in reading. In grade six the highest mean reading score (7.37) was marked by pupils whose teachers had a course in reading, while the second highest (7.18) was achieved by pupils whose teachers had a course in primary methods. The largest difference marked in achievement for grades one, two and three was between levels one and two of question 2. As for grade six, the largest difference was marked between levels two and three of question 2.

It is of interest to note here that more teachers have taken courses in primary methods and reading instruction than have taken only a course in reading. This numerical difference is indicated by the standard error.

The reader of this report is cautioned at this point to be aware that no attempts were made to identify specific components of the courses taught in various teacher training centers under labels such as primary methods, language arts, etc. The course names are used only to describe general course categories.

TABLE 8.34

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO URBAN/RURAL, GRADE AND TEACHERS' READING TRAINING

	Teachers' Reading Training 1				Teachers' Reading Training 2			
	Urban	S.E.	Rural	S.E.	Urban	S.E.	Rural	S.E.
Grade 1	1.87	± .35	1.71	± .38	1.69	± .84	1.66	± .70
Grade 2	3.18	± .35	2.97	± .41	2.80	± .73	2.82	± .60
Grade 3	4.19	± .43	3.93	± .43	3.88	± .71	3.71	± .57
Grade 6	7.06	± .52	7.30	± .45	7.12	± .45	6.64	± .49

	Teachers' Reading Training 3				Teachers' Reading Training 4			
		S.E.		S.E.		S.E.		S.E.
Grade 1	1.79	± .64	1.84	± .74	1.84	± .30	1.89	± .28
Grade 2	3.09	± .66	3.01	± .56	3.06	± .31	2.87	± .30
Grade 3	4.03	± .78	4.03	± .55	4.04	± .29	3.85	± .28
Grade 6	7.66	± .53	7.09	± .56	7.41	± .37	6.90	± .36

Pupils of grades two and three achieved higher, as shown in Table 8.33, when their teacher had a course in primary methods. In grade six the pupils whose teachers had a course in reading scored highest with a mean achievement score of 7.37. This coincides with the results recorded for time allotment by both the present study and Brekke (1963, pp. 234-7). Grade six pupils appeared to achieve higher when more time was spent on reading. It should be remembered that Brekke also recommended that more time be spent on basic skills in grade six. If the assumption noted earlier is true, then possibly the pupils of level three in grade six scored higher because their teachers, having basic reading training, tended to spend more time on reading skills. The rural grade one pupils, as is shown by Table 8.34, scored highest (1.89) in level four, *i.e.*, those whose teachers had a course in primary methods and reading. However, grade one urban pupils scored highest (1.87) in level one *i.e.*, those whose teachers had a course in primary methods, with level four pupils scoring next (1.84).

A possible explanation for this finding, other than teacher preparation alone, might be that basic reading skills of the urban pupils were better established in grade one than were those of the rural pupils (who scored highest in level four), partly due to the fact that the proximity or availability of kindergarten is perhaps greater in urban areas. The possibility of wider KE can perhaps be offered as a tentative reason why grade one urban pupils did better without the extra drill work which seems to be associated with teachers having special reading courses and which rural pupils appear to need. A similar pattern is found in analysing the results for grades two and three. The urban pupils whose teachers had a primary methods course only scored higher than any other level (.09 higher and .15 higher for grades two and three respectively). Grade two rural pupils scored higher in level three—.04 higher than the next highest score of level one. Grade three rural pupils scored .10 higher in level three than in level one. In grade six the pattern was reversed—urban pupils scored highest in level three, rural in level one.

Some interesting observations may be made with respect to these last findings. Table 8.34 demonstrates that, in general, urban pupils scored higher than rural pupils.

A trend when achievement is measured with teacher preparation shows up in Table 8.34—in grade one rural level four pupils scored .02 higher than urban level one pupils. By grade six urban level three pupils scored .36 more than rural level one pupils. (In each case here the highest level scores, urban and rural, are being compared).

TABLE 8.35

MEAN READING ACHIEVEMENT SCORES CLASSIFIED ACCORDING TO GRADE, SEX AND TEACHERS' READING TRAINING

	Teachers' Reading Training 1				Teachers' Reading Training 2			
	Male	S.E.	Female	S.E.	Male	S.E.	Female	S.E.
Grade 1	1.72	± .36	1.86	± .37	1.60	± .74	1.74	± .79
Grade 2	2.99	± .37	3.15	± .39	2.76	± .63	2.87	± .68
Grade 3	3.84	± .43	4.28	± .43	3.58	± .60	4.00	± .66
Grade 6	7.09	± .47	7.27	± .50	6.74	± .47	7.01	± .47
	Teachers' Reading Training							
	Male	S.E.	Female	S.E.	Male	S.E.	Female	S.E.
Grade 1	1.77	± .68	1.87	± .70	1.82	± .29	1.91	± .29
Grade 2	2.98	± .59	3.13	± .61	2.88	± .30	3.05	± .31
Grade 3	3.84	± .62	4.23	± .65	3.88	± .28	4.01	± .28
Grade 6	7.17	± .55	7.58	± .54	7.18	± .35	7.13	± .37

Table 8.35 shows the interaction Grade × Sex × Q2. Females scored highest in all four levels of all grades except in level four, grade six, where males achieved .05 higher.

In grade one males and females both scored highest in level four. In grade two both scored highest in level one. In these two cases the

addition of the sex factor caused no apparent deviation from the achievement results demonstrated by the interactions of other variables and teacher preparation. However, in grade three the females still scored highest in level one (4.28) while males scored highest in level four (3.88)—pupils whose teachers had primary methods and reading. Again in grade six males and females scored highest in different levels—females in level three (7.58) and males in level four (7.18).

There may be many reasons for this variation in levels between males and females. Its existence does, however, seem to point to the need for extensive research into the reasons behind achievement differences between males and females. Perhaps modes of instruction, in particular, need be examined by such further research. The differences in courses taken by teachers included in the present study seem to imply basic differences in instructional methods, for the teacher preparation variables have tended to gather around the sex variation groupings.

Several studies (Gaver, 1962, 1962a and others) report a positive relationship between the teachers' backgrounds in library skills and reading and their pupils' achievement in these areas. Here another variable, school library, is found to enter the discussion. In addition these studies indicate that there is a positive correlation between reading achievement and the quality of what is being read, and the existence of a school library with trained staff.

Many studies (Lampard 1964; Jenkinson 1964; Gaver 1963), indicate an inadequate use of public and/or school libraries when both or either school and public library services are available. Gaver (1960, 1962a) notes that pupils, particularly from grades four to seven, score higher on achievement tests and, in general, read more and better when the school has a school library adequately staffed, as opposed to a central (school library with parent or teacher staff) or classroom library. This appears to be due not only to the greater variety of material available in a school library but also to the inadequate preparation of teachers in library skills. It should be noted that library skills are important not only for teachers but also for pupils and are almost mandatory for pupils in the secondary schools, particularly for those who intend to continue to the university level.

Teacher Variables

The teacher variables included in the present discussion are based on statistics gained from the Alpha File of The Manitoba Teachers' Society. The analysis of variance of the mean reading achievement scores of pupils classified according to U/R, grade, teachers' experience and academic standing of the teacher yielded significant F values of 47.96 ($F = p < .01$ level), 3,496.91 ($F = p < .01$ level), and 12.67 ($F = p < .01$ level) for U/R, grade and teachers' experience respectively, as shown in Table 16, Appendix III. The main effect of teachers' academic standing was not significant. However, U/R interacted significantly with grade at the .01 level. All other interactions were not significant.

This analysis of variance was carried out for the following classification of factors:

1. Urban/Rural;
2. Grades one, two, three and six;

3. Teachers' Experience: (a) one to two years of experience;
   (b) three to five years of experience;
   (c) six years of experience and over;
4. Academic Standing: 0-one university year;
   two years of university and over.

TABLE 8.36

MEAN READING ACHIEVEMENT SCORES OF CLASSES CLASSIFIED ACCORDING TO URBAN/RURAL

	Mean Achievement	S.E.
Urban	38.01	± .29
Rural	35.48	± .23

TABLE 8.37

MEAN READING ACHIEVEMENT SCORES OF CLASSES CLASSIFIED ACCORDING TO GRADES

	Mean Achievement	S.E.
Grade 1	16.55	± .35
Grade 2	27.78	± .35
Grade 3	36.71	± .35
Grade 6	65.94	± .38

TABLE 8.38

MEAN READING ACHIEVEMENT SCORES OF CLASSES CLASSIFIED ACCORDING TO TEACHERS' EXPERIENCE

Experience	Mean Achievement	S.E.
1 - 2 years	35.62	± .31
3 - 5 years	36.75	± .35
6 years and over	37.86	± .28

Tables 8.36, 8.37 and 8.38 show the mean reading achievement scores of classes classified according to U/R, grade and experience respectively. Classes of reading in urban schools scored higher than classes in rural schools. Discussion with reference to the variable U/R can be found in the previous sections. It is of interest to note here that there are more classes in reading in rural schools than in urban schools as the SE indicates. Similarly, the classes of the various grades and their mean reading achievement scores are presented in Table 8.37. All classes in all grades achieved at least two to four months below the norms of the test. In addition, the table indicates that there are more classes of grades one, two and three than of grade six. With reference to experience, the data presented in Table 8.38 indicates that classes who have teachers with experience of six years and over achieved higher in reading than those classes who have teachers with one to two years of experience or three to five years of experience. It is worth noting here that there are more classes with teachers

of six years of experience and over than classes with teachers of three to five years or one to two years of experience. With reference to the interaction between experience and academic standing, although this was not significant, Table 8.39 presents the data of the mean reading achievement scores of classes classified according to experience and academic standing. From the data of this table, one can note that achievement differences are very slight except in the level "six years and over".

TABLE 8.39

MEAN READING ACHIEVEMENT SCORES OF CLASSES CLASSIFIED ACCORDING TO ACADEMIC STANDING AND EXPERIENCE

	Academic Standing			
	0 - 1 years	S.E.	2 years and over	S.E.
1 - 2 years	35.77	± .35	35.46	± .72
3 - 5 years	37.23	± .40	36.28	± .77
6 years and over	37.58	± .34	38.13	± .46

TABLE 8.40

MEAN READING ACHIEVEMENT SCORES OF CLASSES CLASSIFIED ACCORDING TO URBAN/RURAL AND GRADE

	Urban	S.E.	Rural	S.E.
Grade 1	16.86	± .56	16.25	± .44
Grade 2	28.47	± .56	27.09	± .44
Grade 3	38.47	± .56	34.95	± .45
Grade 6	68.24	± .60	63.64	± .49

Table 8.40 indicates the mean reading achievement scores of classes classified according to grade and U/R. As can be seen, urban classes in the various grades achieved higher than their counterparts in rural schools. It is of interest to note here that there are more classes per grade in rural schools than in urban schools as the SE indicates, particularly in grade six.

The finding of the present analysis, that the main effect of academic standing was non-significant (that is, teachers with 0 to one year of academic preparation or teachers with two years and over of academic preparation), should be viewed carefully and further research is warranted before any generalization can be made. In addition, although it was found that experience as main effect was significant, one cannot generalize that academic preparation is not important and that experience is the main thing for teacher preparation. It may be that the experienced teacher, who perceives his own specific needs and makes his university course selection on that basis, benefits to a greater degree than the less experienced teacher.

CHAPTER 9

SUMMARY OF FINDINGS AND CONCLUSIONS

The study investigated the reading achievement of 30,973 pupils from grades one, two, three and six of the elementary public schools in Manitoba for the academic year 1968-69, and sought information from 2,998 teachers who taught reading in the elementary public schools of Manitoba. The study examined factors incorporating measures of intellectual ability, sex, bilingualism, indices of SEL, U/R and other factors within the learning environment such as, class size, organization for reading instruction, percent of class having kindergarten experience, time spent in reading, basic instructional materials, libraries, pupils reported reading below potential level, courses in reading, experience and academic standing of teachers. All of these variables were measured with respect to their contribution to reading achievement as measured by the Stanford Reading Achievement Test. Another standardized instrument which was used was the Otis-Lennon Mental Ability Test. In addition to these two standardized tests, a questionnaire was devised in order to elicit teachers' responses on certain aspects of the study.

Summarizing the descriptive statistics of the study, it was found that a large number of teacher respondents reported:

(1) that they were trained at the Manitoba Teachers' College (52 percent).

(2) that they had taken, during their training, the course of Primary Methods and Reading (48 percent),

(3) that they had no credit courses in reading since training (70 percent),

(4) that their most recent reading course had been taken before 1962 (31 percent),

(5) that *The Instructor* was found to be the most helpful journal for teaching reading (51 percent). (The limitation inherent in the question regarding journals that teachers used limits any major generalizations that are made. The simple identification of one or two journals leaves considerable uncertainty as to whether these are the only journals that are helpful to the teacher or whether these are the only journals available in the school.)

(6) that the most recent In-service session in reading they had attended was in 1968-69 (51 percent),

(7) that they spent 41 to 50 percent of class time for the reading program (30 percent),

(8) that reading readiness was assessed by teacher-observation and by a readiness test (51 percent),

(9) that the pupil's ability was assessed by teacher-observation and by a readiness test (51 percent).

(10) that 0 to 10 percent of their pupils read below their potential reading level (48 percent).

(11) that over 61 percent of their class had kindergarten experience, (48 percent). (It should be noted here that 37 percent of the teachers reported that 0 to 10 percent of their class had kindergarten experience),

(12) that their pupils who had kindergarten experience had half-day day kindergarten experience (93 percent),

(13) that the entrance age for kindergarten in their school was five years old by December 31 (58 percent),

(14) that the entrance age to grade one was six years old by December 31 (63 percent),

(15) that the type of classroom organization used in the classroom for reading instruction was self-contained (85 percent),

(16) that the type of teacher-pupil relationship they applied for basic reading instruction was grouping by levels and regrouping for specific purposes (40 percent).

It is of interest to note here that in the Ontario Curriculum Institute (OCI) Study, *A First Look* (1964), the Committee on the Teaching of Reading reported that only a *small number* of teachers recommended whole class instruction alone, and only 88 teachers were in favor of individualized instruction. The study also indicated that the majority of teachers were in favor of organizing groups within the classes. Most teachers reported they used three types of organization such as whole class, individualized by achievement, or grouping according to achievement, ability, or special skills.

Teachers surveyed in Manitoba numbered approximately one-half of those questioned in the OCI study, but the numbers reporting use of both individualized instruction (90) and whole class instruction (465) still remain higher (and in the case of the latter much higher) than the numbers of OCI study teachers recommending these practices. A few teachers felt that if individual instruction is used as the only method of teaching reading in the classroom, children tend to relate to the teachers only as a machine. Individualized instruction or programmed learning instruction does not preclude opportunities for group work and interaction.

(17) that grouping methods in the classroom were determined by a combination of methods, *i.e.*, teacher observation and testing (81 percent),

(18) that if standardized tests were used for grouping practices, a combination (readiness test, diagnostic test, achievement test, and ability test) of tests were used for that purpose (32 percent),

(19) that if teacher-made tests were used for grouping practices, a combination (readiness test, diagnostic test, achievement test), of tests were used for that purpose (68 percent),

(20) that the principal type of materials used in their classroom for basic instruction was the basal readers with supplementary materials (58 percent),

(21) that the basal readers predominantly used in their classroom were Copp-Clark (85 percent),

(22) that the supplementary reading materials most frequently used in their classroom were the teacher-made duplicated materials (39 percent),

(23) that they did not receive assistance in organizing or planning classroom reading activities (72 percent). (The fact that emerges from these data was the heavy responsibility placed on the individual teacher for the organization of reading programs),

(24) that they received assistance from the supervisor in organizing or planning reading activities in the classroom, (44 percent),

(25) that help was available as the need was felt (85 percent of those reporting receiving help),

(26) that pupils had received very little extra help (29 percent), or that pupils received help from classroom teachers outside regular classes (26 percent),

(27) that if extra help was given, the need was determined by teacher observation (60 percent),

(28) that they had no central library in school (59 percent); or that they had a central library in the school (41 percent),

(29) that the school library was established between 1965-1968 (66 percent),

(30) that they had access to public libraries (64 percent),

(31) that there were approximately 2,001 to 4,000 holdings in their school library (28 percent),

(32) that the ratio of books per pupil available in the school library was one to five books (50 percent),

(33) the presence of a classroom library (78 percent). (In the OCI study 4,581 respondents from the total of 5,993 stated that there were libraries in their classrooms),

(34) that the holdings of their classroom libraries were 200 or more (27 percent). (It is of interest to note here that in the OCI study, the greatest number of respondents indicated they had fewer than 100 volumes),

(35) that generally the classroom library was used for a combination (reference, library skills, recreational reading and research) of purposes, (55 percent); or that the classroom library was used for recreational reading only (40 percent),

(36) that in cases where the school had a central library, the central library was staffed with a part-time librarian (32 percent); or that the central library was staffed with classroom teachers (28 percent). (Of the 3,976 respondents who completed the question in the OCI study concerning responsibility for the school library, the majority of the respondents (2,185) indicated that a teacher librarian was responsible for the school library. At this point it should be noted that the question as to whether a teacher was employed full time or part-time as a librarian is not clear in the study. Only 57 respondents stated that classroom teachers were responsible for the library and 541 teachers indicated that a part-time librarian was used),

(37) that their classroom size was between 26 and 30 pupils (37 percent), and that their classroom size was between 20 and 25 pupils (29 percent),

(38) that the average educational-cultural level of their community, was high school (57 percent), and that the average educational-cultural level of their community was elementary school (39 percent),

(39) that the pupils in their classroom neither heard nor spoke a language other than English (49 percent) and that children in their classroom heard but did not speak another language at home (29 percent),

(40) that less than 10 percent of their pupils spoke a second language at home (46 percent), and that no other language was spoken at home by their pupils (46 percent).

The average IQ of the tested sample for grades one, two, three and six in the elementary schools in Manitoba on the Otis-Lennon Mental Ability Test, was as follows:

grade one —102
grade two —102
grade three—102
grade six —104

The 50th percentile of the tested sample for grades one, two, three and six of the elementary schools in Manitoba on the SRAT (May 1st to May 15th, 1969) was as follows:

(1) Paragraph meaning:

grade one —1.6
grade two —2.6
grade three—3.1
grade six —6.4

(2) Word Meaning:

grade one (word reading)—1.7
grade two —2.7
grade three —3.7
grade six --6.4

(3) Word Study Skills:

grade one —1.9
grade two —3.1
grade three—4.2
grade six —N.A.

On the basis of the grade scores, it is worth noting here that "word study skills' received more emphasis in the elementary schools of Manitoba than any other aspect of reading. The high grade-scores in word study skills for each of the grades did not produce a corresponding high grade-score in "paragraph meaning" or "word meaning". It is reasonable to say that paragraph meaning comprehension is more than word study skills.

Some of the results of the statistical analysis were expected and others were not. Based on the principal component factor analysis, a reduced set of variables was found to provide an optimal prediction equation for reading achievement scores. Some of these variables are as follows: age of pupils, IQ of pupils, U/R classification, average community family attended high school, children speak a language other than English at home, economic status of that area based on income, kindergarten experience of class, teacher-pupil relationship reported as individualized instruction, pupils receiving help from adjustment teachers, class time per week for reading program, number of pupils per class, teacher-pupil relationship in instructional situation, SEL of family, entrance age in grade one, existence of central school library, and average community family attended elementary school.

The general effect of the analysis was to produce some variables that contribute to reading achievement and, thus, determine the standing of the variables in this way. The contribution of most of the variables was expected to be small due to the fact that the questionnaire is not usually considered a rigorous instrument for research. The questionnaire should be viewed with caution in interpreting any of the results. The regression analysis leads one to the following conclusions:

(1) that IQ was the best predictor of an individual's ability and of reading achievement scores;

(2) that age of pupils was the second best predictor for reading achievement scores;

(3) that the estimated average of the educational-cultural level of the school community (education of the family) was the third predictor variable;

(4) that SEL of the family was the fourth predictor variable for reading achievement scores.

In general, good reading achievement was found to be associated with urban schools, high SEL, an entrance age of six by December 31, and students who speak only English at home. So the student who is intelligent, whose age is appropriate for the grade level, and who comes from a high SEL will probably be able to achieve a high score in paragraph meaning on the SRAT.

The monolingual English pupil scored higher in paragraph meaning on the SRAT than the bilingual pupil in the elementary public schools of Manitoba. That is, pupils who speak only English have a higher mean reading achievement score than those pupils who speak English and another language. The study, in addition, provided data that pupils who speak only English at home achieved higher in reading, as tested by SRAT, than those pupils who hear or speak another language at home.

The variables SEL, U/R, sex and IQ have affected the mean reading achievement scores of the pupils of the elementary schools in Manitoba. Pupils coming from a higher SEL achieved a higher mean reading score than those pupils coming from a low SEL. Similarly, students of urban schools scored higher than those pupils coming from rural schools. The difference between urban and rural pupils is more evident in grade six than in the lower grades.

Females scored higher in the mean reading achievement scores, as measured by SRAT, than males in all instances except in grades one, two, and three where Bilingual/German males scored higher than their counterparts.

IQ was found to be the best predictor variable for reading achievement scores in the study. It is of interest to note here that low IQ monolinguals had a higher mean reading achievement than bilinguals, whereas in high IQ the opposite was true.

The present study provided data that smaller classes were not associated with higher mean reading achievement scores. Class size needs to be considered with other factors and other specified conditions for more meaningful inquiry.

With reference to classroom organization (grouping), the study found that high reading achievement scores were associated with non-graded classroom organization. In addition, the study found that non-graded schools were associated with higher SEL pupils which indicates that non-graded schools or classrooms existed in areas where pupils came from a higher SEL. The majority of the teachers who responded to this question reported that they used the self-contained classroom organization which ranked third highest in reading achievement scores.

With reference to kindergarten experience, the study found that the mean reading achievement scores of pupils were higher in cases where teachers reported that their pupils had attended kindergarten than in cases where teachers reported that their pupils had not attended kindergarten or that a low percentage of their pupils had attended kindergarten. Although the study was not designed to examine the effect of kindergarten training, a general statement could be made that pupils coming to the classroom with kindergarten experience achieved higher than those who did not.

With reference to the question of time set aside for the reading program, higher mean reading achievement scores were associated with pupils whose teachers spent 20 or 30 percent of their time in the reading program. It was of interest to note here that pupils whose teachers reported that they spent over 50 percent of their time in the reading program scored second highest in the study. Generally speaking, grades one and six appeared to show that the greater the time spent in reading, the higher the achievement, while for grades two and three the less time spent in reading instruction the higher the achievement. From the data of the study, it appears that the most crucial grades in the elementary school are grade one and grade six. Grade one is a crucial grade in the sense that it introduces the pupil to the basic skills of reading and patterns his feelings toward the reading art, while in grade six the student is introduced to some more sophisticated skills of reading. In general, the results of the study appear to indicate that pupils achieve better results in reading with smaller amounts of time spent in reading instruction *per se*. This appeared to agree with results tabulated in previous studies. It may be hypothesized that in classrooms where high percentages of reading time are reported, excessive amounts of drill stifled the motivation for reading.

With reference to the principal type of materials used for basic reading instruction, higher scores were associated with pupils whose teachers reported using basal readers with supplementary materials. Similarly, high reading achievement scores were recorded also by pupils who used trade

books, programmed materials and pupil-composed materials or a combination of the above. The third highest mean reading score was achieved by pupils whose teachers reported using basal readers only. A very high percentage of teachers reported using the Copp-Clark series. The study produced data revealing no difference in reading achievement as a result of using one basal series rather than another. Even the low percentage of pupils who used other types of basal readers in their classroom produced almost the same reading achievement scores as the pupils using the provincially authorized series.

The supplementary reading materials which were most frequently used in the classroom were teacher-made duplicated materials. The highest mean reading achievement scores were recorded by pupils whose teachers reported that they used in their classroom supplementary reading materials, self-instructional materials and trade books (library books). The second highest, and close to the first, were pupils whose teachers reported that they used skills supplement in their classroom. It was found also that the self-instructional materials were mostly used in rural schools.

A high percentage of teachers reported that their school library had between 2,001 and 4,000 books. Although no other attempts were made to verify the estimates of the teachers, the analysis itself produced a non-significant value which meant that the number of library holdings was not related to reading achievement. As has been indicated, the very fact that the school had a library with a number of volumes did not mean that the school would have pupils with a higher mean reading score. This depends a great deal on the use of the library facilities, the kinds of books available and the training of teachers for guiding the students for such library use.

The pupils of teachers who reported that a low percentage of their classroom pupils read below potential level achieved higher mean reading achievement scores than those pupils of teachers who reported a high percentage reading below potential level. On the average, the achievement was commensurate with the teachers' estimate of the percentage of pupils reading below their potential level.

With reference to the courses in reading taken by the teachers during their training, the study provided data that higher mean reading achievement scores of pupils were associated with teachers who had taken a course in reading. The largest number of teachers responding to the questionnaire had taken a course in primary methods and reading. The pupils of these teachers achieved scores third in rank.

Finally, with reference to the teacher variables, teachers' experience was found to contribute significantly to pupils' reading achievement. The academic standing, or the university training of the teachers in this sample was found to be not significant statistically. It must be mentioned from a non-significant interaction between academic standing and experience that the teachers with zero to one years of academic standing and six years and over, their pupils achieved lower than those teachers who had two years and over of academic standing and six years and over of experience. So, in the long run, one can see that years of experience and academic standing do have significant effects on the achievement of the pupils. It may be that the experienced teachers who perceive specific needs benefit better from their courses as they can relate the courses that they take to the specific needs they have felt in the classroom.

The information presented in this report was not focused upon individual students, classrooms, schools, or school divisions. Nor was it designed to evaluate the effectiveness of any given method in reading, classroom organization, or facilities. It sought to collect overall information about achievement in reading of a large segment of the population of the elementary public schools in Manitoba.

It is the hope and the recommendation of the Commission that this large scale research be followed up by experimental small-scale research for more precise results.

RECOMMENDATIONS

While a survey seldom purports to impose value judgments on existing status, its benefits can be evaluated, at least in part, in relation to critical assessment that it stimulates. No less significant is the potential inherent in a well-designed survey for disclosing areas for further study and/or generating hypotheses which beg experimental research. The present survey meets these criteria without question, and, it is on the bases mentioned above, that the Manitoba Reading Commission submits its recommendations.

In examining the results of the survey, the reader must be cautioned that there is limited information in the report that can possibly justify direct implementation of changes at the classroom or community level. This applies equally to variables related to SEL, IQ, age etc. and variables related to selection of materials, classroom organization and availability of teacher consultative services.

The substantial sample size of the present survey permits the unequivocal statement that Manitoba pupils in grades one, two, three and six do not read as well as the SRAT norm group. While the validity of American tests for Canadian pupils is frequently questioned, some reference point against which the *status quo* can be viewed seems desirable. This is true, particularly since this is the only reference point available, and that reading demands on pupils are frequently based on American readability measures. In view of the pronounced discrepancies between the norms of the survey sample and those of the original SRAT sample, and on the basis of certain variables identified by the present survey, the Commission recommends that intensive experimental studies be initiated in order that crucial variables may be examined in relation to their specific effects upon reading achievement. Some particularly urgent problems for investigation follow.

The large number of pupils who appear to be making little reading gains in their first year of instruction and the seeming cumulative deficit occurring by the end of grade three dictate a need for research which will disclose specific criteria for early detection of potential learning problems. Equally important is research that will aid teachers in assessing specific strengths and weaknesses related to the learner's preferred learning style.

The Commission recognizes the importance of judicious selection of materials to meet the needs of the individual learner. The position taken, however, is that more large scale studies attempting to "average out" which basal series or which programmed packages are "best" are futile

areas of investigation. What is needed is well-designed research that will ferret out what aspects of materials are optimum for the pupil with a specific constellation of learning strengths and interests.

A salient recommendation of the Commission relates to the total philosophy of teaching—that experimental research in Manitoba make as its focal point investigation of variables related to "teaching pupils to read" rather than "teaching reading to pupils". This recommendation encompasses the necessity for research that will yield much needed information about language development in relation to reading, the varying effects of bilingualism on reading achievement, and the effects of varying pupil-teacher interaction patterns on reading achievement. It is felt that research is needed that will transcend cognitive variables. This recommendation begs for information regarding teacher preparation—not only in terms of how much the teacher needs to know about teaching reading but also how much he needs to know about children. Indeed, research is needed to determine optimum patterns for developing teacher-sensitivity and observation skills.

The Commission recognizes a need for carefully planned research to ascertain means of effective assistance for teachers. It may be that research of this nature may be more feasible at the school system level rather than on a larger scale.

The comparatively low median reading score at the grade six level points out emphatically that many grade six pupils in Manitoba are reading content materials (Social Studies, Science, etc.) at a frustration level of difficulty. Clearly, classroom teachers must take this into account and adjust teaching procedures accordingly; further a new look needs to be taken with regard to authorization of textbooks.

There is some suggestion in the findings of the study that a cumulative deficit in reading achievement occurs at least between grades one and three. The Commission recommends that an additional survey be undertaken in grades eight and ten to determine whether this cumulative trend persists in the upper grades.

In conclusion, the Commission feels that Manitoba pupils deserve more than is currently available to them on the basis of the norms established by the Commission. It is apparent to the Commission that the problem warrants more than isolated, myopic measures to remedy the situation. What is urgently needed is the corporate efforts of interested bodies—Manitoba universities, The Manitoba Department of Youth and Education, The Manitoba Teachers' Society, The Manitoba School Trustees' Association, etc.—to become involved immediately in serious dialogue. The Commission recommends the establishment of conferences in the province to facilitate such dialogue, dialogue which will result in making the "right to read" a reality for Manitoba pupils.

Reading Commission,
The Manitoba Teachers' Society

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APPENDIX I

TABLE 1

VARIABLES IN THE STUDY

Number	DESCRIPTION	Abbreviation
1	Number of the teachers in the study	NoT
2	Urban and rural classification	U/R
3	Class: economic status of area based on income	C:ES
4	Grades sampled: One, Two, Three and Six	Gr.
5	Room	Rm.
6	Professional training of teacher	PTT
7	Teacher's academic standing (Years in university)	TASU
8	Age of pupils	Age
9	Boys studied: sex (boys)	Boys
10	Word Meaning. (Word Reading). Stanford Achievement Test)	WMWR
11	Vocabulary	Voc
12	Word Study Skills	WS
13	IQ of pupils	IQ
14	Achievement level of pupils. (Stanford Achievement, paragraph meaning)	AL
15	Socio-economic level of family	SEL
16	Mother supporting family	MS
17	Pupils speak language other than English	LOE
18	Teachers trained at Brandon University	TTBU
19	Teachers trained at Brandon Teachers' College	TTBTC
20	Teachers trained at University of Manitoba	TTUM
21	Teachers trained at Manitoba Teachers' College	TTMTC
22	Teachers trained at other institutions	TTO
23	Primary methods course while teacher training	PMTT
24	Language Arts course while teacher training	LATT
25	Reading course while teacher training	RTT
26	Primary methods and Reading course while teacher training	PMRTT
27	Other courses while teacher training	OTT
28	Credit courses in reading since teacher training	CCTT
29	Last reading course taken by teacher	LRC
30	*Elementary English*, most helpful journal	HJEE
31	*Reading Teacher*, most helpful journal	HJRT
32	*The English Journal*, most helpful journal	HJEJ
33	*The Instructor*, most helpful journal	HJI
34	*Grade Teacher*, most helpful journal	HJGT
35	*Elementary School Journal*, most helpful journal	HJESJ
36	Some other journal most helpful	HJO
37	Most recent in-service session attended by teacher	I-SS
38	Class time per week for reading program	CTRP
39	Reading readiness assessed by teacher observation	RRTO
40	Reading readiness assessed by readiness test	RRRT
41	Reading readiness assessed by teacher observation and readiness test	RRTORT

TABLE 1

VARIABLES IN THE STUDY—Continued

Number	DESCRIPTION	Abbreviation
42	Reading readiness assessed by other means	RRO
43	Pupil ability assessed by published test	CAPT
44	Pupil ability assessed by teacher observation	CATO
45	Pupil ability assessed by teacher observation and published test	CATOPT
46	Pupil ability assessed by other methods	CAO
47	Pupils reported as reading below potential level	CRBPL
48	Kindergarten experience of class	CKE
49	Half-day kindergarten experience	HDKE
50	Half-day Montessori experience	HDME
51	Full-day kindergarten experience	FDKE
52	Six-week kindergarten experience	6WKE
53	Other type of kindergarten experience	OKE
54	Kindergarten entrance age: five years old by Sept. 30	KE5S
55	Kindergarten entrance age: five years old by Oct. 30	KE5O
56	Kindergarten entrance age: five years old by Nov. 30	KE5N
57	Kindergarten entrance age: five years old by Dec. 31	KE5D
58	Kindergarten entrance at some other age	KEO
59	Grade one entrance age: six years old by Sept. 30	G16S
60	Grade one entrance age: six years old by Oct. 31	G16O
61	Grade one entrance age: six years old by Nov. 30	G16N
62	Grade one entrance age: six years old by Dec. 31	G16D
63	Grade one entrance at some other age	G1O
64	Classroom organization: self-contained	CO:SC
65	Classroom organization: departmentalized	CO:D
66	Classroom organization: Joplin type	CO:J
67	Classroom organization: within grade grouping	CO:GG
68	Classroom organization: non-graded	CO:NG
69	Other type of classroom organization	CO:O
70	Teacher-pupil relationship unstructured (no grouping)	TPR:U
71	Teacher-pupil relationship: grouping by levels	TPR:GL
72	Teacher-pupil relationship: individualized instruction	TPR:II
73	Teacher-pupil relationship: varies grouping for specific purposes	TPR:V
74	Other type of teacher-pupil relationship used	TPR:O
75	Grouping determined by testing only	G:T
76	Grouping determined by teacher observation only	G:TO
77	Grouping determined by combination of methods	G:C
78	Grouping determined by other means	G:O
79	Grouping determined by readiness tests	CG:RT
80	Grouping determined by diagnostic tests	CG:DT
81	Grouping determined by achievement tests	CG:AT
82	Grouping determined by ability tests	CG:AbT
83	Grouping determined by combination of tests	CG:C
84	Grouping determined by other methods	CG:O
85	Teacher-made test for grouping practices: readiness test	TMT:R
86	Teacher-made test for grouping practices: diagnostic test	TMT:D
87	Teacher-made test for grouping practices: achievement test	TMT:A
88	Teacher-made test for grouping practices: combination of tests	TMT:C

TABLE 1

VARIABLES IN THE STUDY—Continued

Number	DESCRIPTION	Abbreviation
89	Basic instruction material: basal reader only	BIM:BR
90	Basic instruction material: basal reader with supplementary materials	BIM:BRS
91	Basic instruction material: trade books (library books)	BIM:TB
92	Basic instruction material: programmed material	BIM:PM
93	Basic instruction material: combination of materials	BIM:C
94	Basic instruction material: pupil-composed materials	BIM:PC
95	Basic instruction material: other specified type	BIM:O
96	Basal reader predominantly used: Ginn and Co.	PR:GC
97	Basal reader predominantly used: Houghton Mifflin	PR:HM
98	Basal reader predominantly used: Copp-Clark	PR:C-C
99	Basal reader predominantly used: Lippincott	PR:L
100	Basal reader predominantly used: Gage	PR:G
101	Basal reader predominantly used: Winston	PR:W
102	Basal reader predominantly used: Macmillan	PR:Mac
103	Basal reader predominantly used: Collier-Macmillan	PR:C-Mac
104	Basal reader predominantly used: other than named	PR:O
105	Supplementary reading material used: self-instructional material	SRM:I
106	Supplementary reading material used: programmed material	SRM:P
107	Supplementary reading material used: audio-visual aids	SRM:AV
108	Supplementary reading material used: skills supplement	SRM:SS
109	Supplementary reading material used: commercially duplicated materials	SRM:CD
110	Supplementary reading material used: teacher-made duplicated materials	SRM:TD
111	Supplementary reading material used: supplementary phonics program	SRM:SPP
112	Supplementary reading material used: trade books	SRM:T
113	Supplementary reading material used: some other material	SRM:O
114	Received assistance in organizing and planning reading activities	AR:OPR
115	Major assistance received from principal	AR:P
116	Major assistance received from supervisor	AR:S
117	Major assistance received from reading consultant	AR:RC
118	Major assistance received from inspector	AR:I
119	Help available: very seldom	H:SA
120	Help available: as need felt	H:AN
121	Help available: extensive consultation	H:SA
122	No individual help for pupils outside class	PH:NOC
123	Very little individual help for pupils outside class	PH:LOC
124	Help for pupils from classroom teacher outside class	PH:CTOC
125	Help for pupils from school system's adjustment teacher	PH:AT
126	Help for pupils from reading specialist occasionally	PH:RSO
127	Help for pupils from reading specialist regularly	PH:RSR
128	Help for pupils from other sources	PH:O
129	When help needed determined by teacher-made tests	TMTDHN
130	When help needed determined by standardized reading tests	SRTDHN
131	When help needed determined by teacher observation	TODHN
132	When help needed determined by teacher observation and testing	TOTDHN

TABLE 1

VARIABLES IN THE STUDY—Continued

Number	DESCRIPTION	Abbreviation
133	When help needed determined by other specified methods	OMDHN
134	Existence of central school library	SL
135	Date central school library established	SLE
136	Access to public library	APL
137	Number of books in school library	NBSL
138	Books per pupil in school library	B/PSL
139	Classroom library	CL
140	No classroom library	NCL
141	Combination of central and classroom library	CCL
142	Number of books in classroom library	NBCL
143	Classroom library used as reference	CL:R
144	Classroom library used for library skills	CL:LS
145	Classroom library used for recreational reading	CL:RR
146	Classroom library used for research	CL:R
147	Classroom library used for combination of purposes	CL:CP
148	Central library staffed with full time librarian	LS:FTL
149	Central library staffed with part time librarian	LS:PTL
150	Central library staffed with classroom teachers	LS:CT
151	Central library staffed with students	LS:S
152	Central library staffed otherwise	LS:O
153	Number of pupils per class	S/C
154	Average community family attended university	AF:AU
155	Average community family attended high school	AF:AH
156	Average community family attended elementary	AF:AE
157	Language other than English spoken at home by pupils	PSLOTE
158	Language other than English heard but not spoken at home by pupils	PHNSOL
159	Language other than English neither heard nor spoken by pupils at at home	PNHSOL
160	Percentage of class speaking other language at home	PCSOL

PART I

SCHOOLS IN THE SAMPLE ACCORDING TO SCHOOL DIVISIONS

Winnipeg School Division No. 1

Brock-Corydon
Clifton
Earl Grey
Faraday
George V (Elem.)
Gladstone
Greenway (Elem.)
Inkster
John M. King
King Edward
Laura Secord
Lord Roberts (Elem.)
Pinkham
Robert H. Smith
Shaughnessy Park
Sir John Franklin
Sir Sam Steele
Somerset
Strathcona
Weston

St. James-Assiniboia No. 2

Bannatyne
Birchwood
Britannia
Butterworth
Jameswood
Bedson
Heritage
Robert Browning
St. Charles
Voyageur

Assiniboine South No. 3

Beaumont
Chapman
Laidlaw

PART I

SCHOOLS IN THE SAMPLE ACCORDING TO SCHOOL DIVISIONS—Continued

St. Boniface No. 4

General Vanier
Lacerte
Prendergast
Tache
William Russell

Fort Garry No. 5

Pembina Crest
Agassiz Drive
General Byng
Oakenwald
St. Avila

St. Vital No. 6

Glenwood
Hastings
Varennes
Christ the King
Dakota Elementary
Lavallee
St. Marie

River East No. 9

Angus McKay
Prince Edward
Salisbury
Sherwood
Roberts Andrews
John Pritchard
Maple Leaf
Springfield Heights
New Rosewell

Seven Oaks No. 10

Belmont
Centennial
Governor Semple
West St. Paul
H. C. Avery

Lord Selkirk No. 11

Happy Thought Cons.
Libau
Mapleton
St. Andrews Cons.

Transcona-Springfield No. 12

Margaret Underhill
Regent Park
South Springfield
Westview

Agassiz No. 13

Zamek
Brokenhead
Great Falls
Thalberg North
Grosse (Hutterite)
Leonard
Springwell (Hutterite)

Seine River No. 14

Ile des Chenes
Lagimodiere
St. Hyacinthe
La Verendrye
La Broquerie

Boundary No. 16

Dominion City (Elem.)
Glenway
Greenridge

Hanover No. 15

New Bothwell
Southwood
Willow Plain
Blumenhoff
Blumenort Elem.
Linden
Mitchell
Bristol
Lister East
Shakespeare
Carmichael
Niverville Cons.
Montezuma

Red River No. 17

Otterburne Cons.
Ste. Agathe Cons.

Rhineland No. 18

Elmwood
Kronsthal Cons.
Rosenfeld
Roseville
Thames
Sommerfeld

Morris-Macdonald No. 19

Peace Valley (Hutterite)
Rosenort
Kane

White Horse Plain No. 20

Barrick (Hutterite)
Bernier
St. Eustache
Elie
James Valley

Interlake No. 21

Balmoral Cons.
Gunton
Henley (Hutterite)
Stonewall Elem.
Woodlands Cons.
Warren Cons.

Evergreen No. 22

Arborg
Riverton
Goulding (DND)

Lakeshore No. 23

Dog Creek
Fairford
Hodgson
Poplarfield
Karpaty
Inwood

Portage La Prairie No. 24

Fort la Reine
North Memorial
Prince Charles
Brennan (Hutterite)
Fairholme (Hutterite)
Gainsborough
High Bluff
Ingleside (Hutterite)
New Rosedale
Oakville
Point (Hutterite)

PART I

SCHOOLS IN THE SAMPLE ACCORDING TO SCHOOL DIVISIONS—Continued

Midland No. 25

Roland
Roseisle
Sperling
Graysville
Miami
Wingham

Garden Valley No. 26

Birkenhead
Friedensruh
Gnadenthal
Hoffnungsort
Reinland
Rosengart
Winkler

Pembina Valley No. 27

Crystal City
Darlingford
Manitou
Snowflake
West Valley (Hutterite)
Mather

Mountain No. 28

Richard
St. Claude
St. Leon
Swan Lake
Dandurand

Tiger Hills No. 29

Belmont
Cypress River
Glenora
Treherne

Pine Creek No. 30

Rossendale
Muller (Hutterite)
MacGregor
Austin
Langruth

Beautiful Plains No. 31

Arden
Hazel M. Kellington
Wellwood

Turtle River No. 32

McCreary
Riding Mountain
St. Vincent de Paul
Alonsa
Kelwood
Laurier

Dauphin-Ochre No. 33

Makinak
Whitmore
Ochre River

Duck Mountain No. 34

Winnipegosis
Camperville

Swan Valley No. 35

Mafeking Village
Minitonas Elem.
Birch River Village
Kenville
Taylor

Intermountain No. 36

Walker
Brickburn

Pelly Trail No. 37

Rossburn
Russell
Angus
Elphinstone

Birdtail River No. 38

Strathclair
Shoal Lake
St. Lazare
Hamiota
Kenton
Birtle
Crandall

Rolling River No. 39

Minnedosa South
Rapid City
Rivers
Brooke (DND)
Crandale
Douglas
Forrest

Brandon No. 40

Alexandra
Central
David Livingstone
Valleyview Centennial
Deerboine (Hutterite)
Alexander
Linden Lanes
Park
J. R. Reid

Fort La Bosse No. 41

Lenore
Goulter
Elkhorn
Belleview
Pipestone
Reston
Virden Jr. High
Oak Lake

Souris Valley No. 42

Elgin
Wawanesa
Lauder

Antler River No. 43

Lyleton
Melita
Pierson
Waskada

Turtle Mountain No. 44

Welwood (Hutterite)
Cartwright
Dunrea
Holmfield
Killarney
Minto
Ninga

Kelsey No. 45

Kelsey Primary
Sacred Heart
Kelsey Elementary

PART I

SCHOOLS IN THE SAMPLE ACCORDING TO SCHOOL DIVISIONS—Continued

Flin Flon No. 46

Channing
Parkdale
Willowvale

Western No. 47

Morden
Valleyfield
Wakeham

Frontier No. 48

Barrows Junction
Berens River
Cold Lake
Cranberry Portage
Gillam
God's Lake Narrows
Lynn Lake
Moose Lake
Pine Dock
Princess Harbour
South Indian Lake
Thicket Portage
Wabowden

Remote

Duke of Edinburgh, Churchill
Riverside, Thompson
Snow Lake
Juniper, Thompson

TABLE 2

TOTAL STUDENT COUNT

Classified According to the Average Income of the Area Where the School is Located (Low)

URBAN

School	O	U
1. Margaret Underhill	524	517
2. Regent Park	323	318
3. South Springfield	34	31
4. Westview	305	290
5. Earl Grey	201	182
6. Shaughnessy Park	436	422
7. Faraday	315	209
8. Inkster	210	207
9. Greenway	444	463
10. John M. King	525	522
11. Weston	319	306
12. King Edward	352	328
13. Alexandra	182	179
14. Central	210	212
15. David Livingston	144	142
16. J. R. Reid	208	212
17. Linden Lanes	200	203
18. Park	130	122
19. Valleyview Centennial	113	114
20. Fort La Reine	370	358

Legend:
O—Original Estimate
U—Updated (actually took part in survey)

RURAL

School	O	U
1. Graysville	48	47
2. Wingham	43	42
3. Miami	102	102
4. Roland	86	83
5. Roseisle	35	30
6. Sperling	40	38
7. Gnadenthal	47	42
8. Darlingford	55	53
9. West Valley	13	13
10. Mather	45	48
11. Snowflake	41	40
12. Dandurand	59	59
13. Swan Lake	67	61
14. St. Leon	47	45
15. Belmont	71	66
16. Cypress River	51	51
17. Glenora	18	18
18. Austin	151	143
19. Langruth	57	56
20. Rossendale	101	97
21. Arden	75	74
22. Wellwood	37	35
23. Kelwood	71	60
24. Laurier	65	66
25. Riding Mountain	32	31

TABLE 2

TOTAL STUDENT COUNT (Low)—Continued

URBAN			RURAL		
School	O	U	School	O	U
21. La Verendrye	58	57	26. St. Vincent de Paul	27	27
22. North Memorial	110	112	27. Makinak	26	26
23. Prince Charles	172	233	28. Ochre River	82	77
24. Strathcona	305	311	29. Birch River	148	151
25. Pinkham	208	218	30. Kenville	101	96
26. Somerset	231	215	31. Mafeking	67	61
			32. Walker	66	71
			33. Angus	46	44
			34. Elphinstone	105	101
			35. Crandall	69	66
			36. Kenton	78	79
			37. Strathclair	127	75
			38. Cardale	32	32
			39. Douglas	52	46
			40. Forrest	83	84
			41. Alexander	85	87
			42. Belleview	9	9
			43. Lenore	30	31
			44. Pipestone	39	37
			45. Reston	109	113
			46. Woodlands	78	76
			47. Elgin	50	48
			48. Lauder	17	18
			49. Lyleton	18	18
			50. Pierson	62	57
			51. Dunrae	56	56
			52. Holmfield	33	34
			53. Minto	45	42
			54. Ninga	26	23
			55. Wellwood	14	13
			56. Barrows Junction	65	63
			57. Berens River	144	131
			58. Cold Lake	33	27
			59. Cranberry Portage	102	99
			60. Gillam	207	217
			61. God's Lake Narrows	14	12
			62. Jack River	73	61
			63. Moose Lake	129	97
			64. Pine Dock	21	17
			65. Princess Harbour	6	12
			66. South Indian Lake	53	38
			67. Thicket Portage	45	42
			68. Wabowden	109	95
			69. Brooke	347	340
			70. Goulding	155	145

TABLE 2

TOTAL STUDENT COUNT (Low)—Continued

URBAN			RURAL		
School	O	U	School	O	U
			71. John Glassco	23	23
			72. Karpaty	20	19
			73. Kelsey	236	251
			74. Sacred Heart	120	121
			75. St. Lazare	90	115
			76. Inwood	95	97
			77. Camperville	124	102
			78. Alonsa	81	85
			79. La Broquerie	136	135
			80. Siglunes	6	7
			81. Ross L. Gray	129	125
			82. Duke of Marlborough	254	235
			83. Stony Mountain	133	122
			84. Grosse Isle	23	23

TABLE 2

TOTAL STUDENT COUNT

Classified According to the Average Income of the Area Where the School is Located (Medium)

URBAN			RURAL		
School	O	U	School	O	U
1. Glenwood	250	245	1. Hamiota	138	134
2. Hastings	496	491	2. Shoal Lake	127	129
3. Varennes	196	194	3. Rossburn	207	208
4. Dakota Elementary	125	116	4. MacGregor	215	215
5. Lavallee	78	82	5. Montezuma	29	27
6. Ste. Marie	91	91	6. Shakespeare	27	27
7. Belmont	76	80	7. Treherne	87	87
8. Centennial	401	404	8. Richard	116	113
9. Governor Semple	134	140	9. St. Claude	162	150
10. H. C. Avery	165	172	10. Winnipegosis	171	157
11. General Vanier	446	431	11. Hoffnungsort	8	8
12. Lacerte	272	275	12. Elkhorn	122	121
13. Prendergast	378	386	13. Crystal City	90	84
14. Tache	104	98	14. McCreary	104	101
15. William Rusell	181	174	15. Minitonas	206	203
16. Lord Roberts	423	407	16. Wawanesa	144	142
17. George V	339	353	17. Riverton	171	143
18. Sir Sam Steele	124	124	18. Kronsthal	52	52
19. John Pritchard	258	256	19. Cartwright	88	85
20. Maple Leaf	178	188	20. Waskada	59	59

TABLE 2

TOTAL STUDENT COUNT (Medium)—Continued

URBAN			RURAL		
School	O	U	School	O	U
21. Springfield Heights	421	432	21. Oak Lake	127	145
22. Robert Andrews	75	75	22. Rapid City	84	79
23. New Rosewell	108	105	23. Great Falls	49	48
24. Laura Secord	349	334	24. Brokenhead	36	35
25. Bedson	294	319	25. Leonard	131	124
26. Heritage	270	277	26. Fort Whyte	28	26
27. Robert Browning	447	456	27. Libau	53	46
28. St. Charles	141	120	28. St. Andrews	176	186
29. Voyageur	379	419	29. Thalberg North	32	31
			30. Zamek	52	58
			31. Lagemodiere	214	202
			32. La Verendrye	61	58
			33. St. Hyacinthe	51	49
			34. Blumenort	65	65
			35. Blumenhoff	46	43
			36. Bothwell	84	82
			37. Carmichael	38	35
			38. Linden	34	25
			39. Lister East	35	31
			40. Niverville	172	170
			41. Willow Plain	16	16
			42. Dominion City	82	68
			43. Glenway	9	8
			44. Greenridge	98	93
			45. Otterburne	40	39
			46. Ste. Agathe	112	108
			47. Rosenfeld	63	67
			48. Roseville	9	8
			49. Kane	31	31
			50. Peace Valley	10	9
			51. Rosenort	158	147
			52. Barrick	24	14
			53. Bruce	28	28
			54. Elie	91	96
			55. Bernier	50	50
			56. Point	21	20
			57. St. Eustache	95	89
			58. Balmoral	58	58
			59. Gunton	30	29
			60. Warren	101	98
			61. Dog Creek	18	15
			62. Hodgson	19	16
			63. Poplarfield	68	66
			64. Gainsborough	29	29
			65. High Bluff	66	63

O: Original Estimate.
U: Updated (actually took part in survey)

TABLE 2

TOTAL STUDENT COUNT (Medium)—Continued

URBAN			RURAL		
School	O	U	School	O	U
			66. Ingliside Grande	26	27
			67. Oakville	115	101
			68. Komarno	34	34
			69. Purple Bank	48	36
			70. Grand Marais	63	61

TABLE 2

TOTAL STUDENT COUNT
Classified According to the Average Income of the Area Where the School is Located (High)

URBAN			RURAL		
School	O	U	School	O	U
1. Laidlaw	99	102	1. Whitmore	439	427
2. Brock-Corydon	127	119	2. Maplewood	107	102
3. Robert H. Smith	268	278	3. Happy Thought	235	236
4. Sir John Franklin	123	117	4. Lynn Lake	246	245
5. Bannatyne	287	281	5. Snow Lake	179	192
6. Birchwood	143	138	6. Bristol	47	44
7. Britannia	528	525	7. Mitchell	37	37
8. Butterworth	446	446	8. Southwood	199	203
9. Jameswood	408	401	9. Morden	402	397
10. Pembina Crest	82	84	10. Valleyfield	15	15
11. Agassiz Drive	119	114	11. Hazel M. Kellington	311	308
12. Oakenwald	224	230	12. Taylor	209	205
13. St. Avila	278	135	13. Rhineland	22	18
14. Juniper	381	388	14. Rosengart	18	12
15. Riverside	196	187	15. Winkler	317	321
16. Channing	70	67	16. Goulter	171	168
17. Parkdale	153	149	17. Virden Jr. High	113	108
18. Willowdale	228	225	18. Minnedosa South	107	110
19. Clifton	174	169	19. Elmwood	239	231
20. Gladstone	228	211	20. Thames	17	16
21. Angus McKay	268	268	21. Sommerfeld	15	15
22. Prince Edward	311	308	22. Killarney	276	270
23. Salisbury	303	313	23. Russell	222	227
24. Sherwood	178	176	24. Stonewall	281	271
25. Beaumont	232	263	25. Rivers	194	193
26. Chapman	107	107	26. Melita	145	145
			27. Manitou	154	157
			28. Arborg	229	219
			29. Birtle	197	188
			30. Brickburn (Gilbert Plains)	227	225
			31. Emerson	108	72

O: Original Estimate.
U: Updated (actually took part in survey)

TABLE 3

SCHEDULE FOR BRIEFING SESSION RE: READING COMMISSION—TESTING PROGRAM

Date	Location	Time	Consultants	School Divisions
Wednesday April 16, 1969	McMaster House	1.30-4.00 p.m.	T. Hogan P. Halamandaris	1-10, and 12
Wednesday April 16, 1969	McMaster House	7.30-9.30 p.m.	T. Hogan P. Halamandaris	1-10, and 12
Thursday April 17, 1969	Earl Oxford School, Brandon	1.30-4.00 p.m.	T. Hogan P. Halamandaris	29, 30, 31, 39, 40, 41 and 42
Thursday April 17, 1969	Shoal Lake Collegiate Auditorium, Shoal Lake	1.00-3.30 p.m.	K. Breckman	36, 37, 38, 39 and 41
Thursday April 17, 1969	Deloraine Elementary School, Deloraine	7.30-10.00 p.m	K. Breckman	41, 42, 43 and 44
Thursday April 17, 1969	Baldur Elementary School, Baldur	7.30-10.00 p.m.	T. Hogan P. Halamandaris	27, 28, 29 and 44
Friday April 18, 1969	The Library, Portage la Prairie Collegiate, Portage la Prairie	9.30-12.00 noon	T. Hogan P. Halamandaris	20, 24, 25, 28, 29 and 30
Monday April 21, 1969	Teulon Elementary School, Teulon	1.30-4.00 p.m.	J. Gisiger	11, 20, 21 22 and 23
Monday April 21, 1969	Board Room, Dauphin-Ochre School Board, Dauphin (505 Main St.)	1.30-4.00 p.m.	P. Halamandaris K. Breckman	32, 33, 34 and 36
Tuesday April 22, 1969	Board Room, Steinbach Civic Bldg., Hanover School Division, Steinbach	1.30-4.00 p.m.	J. Gisiger	13, 14, 15, 16 and 17
Tuesday April 22, 1969	Taylor Elementary School, Swan River	1.30-4.00 p.m.	P. Halamandaris K. Breckman	34 and 35
Wednesday April 23, 1969	Mary Duncan Elementary School, The Pas	9.00-11.30 a.m.	P. Halamandaris K. Breckman	45
Wednesday April 23, 1969	Morden Elementary School, Morden	9.00-11.30 a.m.	J. Gisiger	18, 19, 25, 26, 27 and 28
Thursday April 24, 1969	Ruth Betts Elementary School, Flin Flon	9.00-11.30 a.m.	K. Breckman	46
Thursday April 24, 1969	Westwood School, Thompson	9.00-12.00 noon	P. Halamandaris	Mystery Lake and Churchil

Final Revised Form Use in place of form originally supplied with testing materials.

MANITOBA COMMISSION ON READING

DO NOT WRITE IN THIS BOX

1. Teacher's Name.....

2. U or R ___ ___ ___ ___ ___

3. H M L

This report should be completed by all teachers whose children are being tested in the Manitoba Reading Survey. Please mail this report through your principal to: Reading Commission, 191 Harcourt Street, Winnipeg 12.

Name of Children in Alphabetical Order (Initials will be sufficient)	1. Chronological Age Yrs. Mos.	2. Boy or Girl	3. Word Meaning ** R.S.	4. Paragraph Meaning R.S.	5. Vocabulary R.S.	6. Word Study Skills R.S.	7. I.Q.	8. Paragraph Meaning Grade Score	9. Socio- Economic	10. Second Language
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										

*As directed in the manual for the Otis Lennon Tests. **Raw Score.

READING COMMISSION STUDY QUESTIONNAIRE
1969

SECTION A

1. What was the TEACHER TRAINING INSTITUTION you graduated from?

   1. ..... Brandon University (Faculty of Education)
   2. ..... Brandon Teachers College
   3. ..... University of Manitoba (Faculty of Education)
   4. ..... Manitoba Teachers College
   5. ..... Other (please specify).....

2. What COURSES did you have in READING at the TEACHER TRAINING INSTITUTION? Check ONLY ONE.

   1. ..... I have had a course in Primary Methods.
   2. ..... I have had a course in Language Arts.
   3. ..... I have had a course in Reading.
   4. ..... I have had a course in Primary Methods and Reading.
   5. ..... Other (please specify).....

3. How many CREDIT COURSES have you had in READING since teacher training? Check ONLY ONE.

   1. ..... None
   2. ..... One (please specify) .....
   3. ..... Two (please specify) (1) .....
      (2) .....
      .....
   4. ..... Three (please specify) (1) .....
      (2) .....
      (3) .....
   5. ..... Four (please specify) (1) .....
      (2) .....
      (3) .....
      (4) .....

4. When was the LAST TIME you took a course in reading? Check ONLY ONE.

   1. ..... I am taking one now
   2. 1967-68
   3. 1966-67
   4. 1965-66
   5. 1964-65
   6. 1963-64
   7. 1962-63
   8. ..... Before 1962

5. What JOURNAL from the following have you found MOST HELPFUL in your teaching of READING? Check ONLY ONE.

   1. ..... Elementary English
   2. ..... Reading Teacher
   3. ..... The English Journal
   4. ..... The Instructor
   5. ..... Grade Teacher
   6. ..... Elementary School Journal
   7. ..... Other (please specify)
      .....

READING COMMISSION STUDY QUESTIONNAIRE—Continued

6. When was the LAST time you attended IN-SERVICE SESSIONS in the FIELD OF READING? Check ONLY ONE.

1. ..... Never
2. 1968-69
3. 1967-68
4. 1966-67
5. 1965-66
5. 1964-65
7. 1963-64
8. 1962-63

7. What per cent of TIME PER WEEK is set apart for the READING PROGRAM in your class? Check ONLY ONE.

1. ..... 20% or less
2. ..... 21%-30%
3. ..... 31%-40%
4. ..... 41%-50%
5. ..... More than 50%

8. What METHOD is used to assess a child's READINESS for reading? Check ONLY ONE. (To be answered by Grade 1 teachers only).

1. ..... Teacher Observation
2. ..... Readiness Test
3. ..... Teacher Observation and Readiness Test (please specify test used) .....
   .....
4. ..... Other (please specify) .....

9. What METHOD is used to assess a child's ABILITY? Check ONLY ONE.

1. ..... Published Test
2. ..... Teacher Observation
3. ..... Teacher Observation and Published Tests (please specify test used) ....
   .....
4. ..... Other (please specify) .....

10. What percentage of your children are reading BELOW their potential level? Check ONLY ONE.

1. ..... 0-10%
2. ..... 11%-20%
3. ..... 21%-30%
4. ..... 31%-40%
5. ..... 41%-50%
6. ..... Over 50%

11. What percentage of your class have had KINDERGARTEN EXPERIENCE? (Please check with school files). Check ONLY ONE.

1. ..... 0-10%
2. ..... 11%-20%
3. ..... 21%-30%
4. ..... 31%-40%
5. ..... 41%-50%
6. ..... 51%-60%
7. ..... Over 61%

If NO to Question 11, omit Questions 12 and 13.

12. What type of KINDERGARTEN EXPERIENCE? Check ONLY ONE.

1. ..... Half-day Kindergarten
2. ..... Half-day Montessori
3. ..... Full-day Kindergarten
4. ..... 6-week Kindergarten
5. ..... Other (please specify) .....

READING COMMISSION STUDY QUESTIONNAIRE—Continued

13. What is the kindergarten ENTRANCE AGE in your school? Check ONLY ONE.

1. ..... Five years old by September 30
2. ..... Five years old by October 31
3. ..... Five years old by November 30
4. ..... Five years old by December 31
5. ..... Other (please specify).....

14. What is the ENTRANCE AGE in your school for Grade 1? Check ONLY ONE.

1. ..... Six years old by September 30
2. ..... Six years old by October 31
3. ..... Six years old by November 30
4. ..... Six years old by December 31
5. ..... Other (please specify).....

15. What type of ORGANIZATION is used in your classroom for reading? Check ONLY ONE.

1. ..... Self-contained classroom (children stay in classroom for reading instruction)
2. ..... Departmentalized (children go to reading teacher for reading instruction)
3. ..... Joplin-type (children are grouped across grade levels—go to classroom where their level is being taught)
4. ..... Within-grade grouping (example: first grade teachers exchanged some pupils during reading period for better grouping)
5. ..... Non-graded
6. ..... Other (please specify).....

16. What is the type of TEACHER-PUPIL RELATIONSHIP you apply for BASIC reading instruction in your class? Check ONLY ONE.

1. ..... No grouping—whole class is taught together
2. ..... Grouping by levels (A, B, C, etc.)
3. ..... Individualized instruction
4. ..... Grouping by levels (A, B, C, etc.) and regrouping for specific purposes.
5. ..... Other (please specify).....

17. How are GROUPING PRACTICES determined in your class? Check ONLY ONE.

1. ..... Testing Only
2. ..... Teacher Observation Only
3. ..... Combination
4. ..... Other (please specify).....

18. If standardized tests are used for GROUPING PRACTICES, what types of test do you use? Check ONLY ONE.

1. ..... Readiness Test
2. ..... Diagnostic Test
3. ..... Achievement Test
4. ..... Ability Test
5. ..... Combination (please specify).....
6. ..... Other (please specify).....

READING COMMISSION STUDY QUESTIONNAIRE—Continued

19. If TEACHER-MADE tests are used for GROUPING PRACTICES, what types of test do you use? Check ONLY ONE.

1. ..... Readiness Test
2. ..... Diagnostic Test
3. ..... Achievement Test
4. ..... Combination

20. Indicate the PRINCIPAL TYPE of materials you use in your present class for BASIC instruction. Check ONLY ONE.

1. ..... Basal readers only
2. ..... Basal with supplementary materials
3. ..... Trade books (library books)
4. ..... Programmed materials (e.g. Sullivan)
5. ..... Combination of any of the above (please specify).....
.....
6. ..... Pupil-composed materials without basal readers
7. ..... Other (please specify).....

21. If you use a BASAL READER, which of these series is used predominantly for your present class? Check ONLY ONE.

1. ..... Ginn and Company
2. ..... Houghton Mifflin (Thomas Nelson Series)
3. ..... Copp-Clark
4. ..... Lippincott
5. ..... Gage
6. ..... Winston
7. ..... MacMillan
8. ..... Collier-MacMillan (Harris Clark)
9. ..... Other (please specify).....

22. Which ONE of the following SUPPLEMENTARY READING materials do you use MOST FREQUENTLY in your class? Check ONLY ONE.

1. ..... Self-instructional materials such as SRA Lab
2. ..... Programmed material
3. ..... A-V aids (slides, filmstrips, etc.)
4. ..... Skills supplement (Skill-text workbooks, RD Skill Builders, etc.)
5. ..... Commercial duplicated materials
6. ..... Teacher-made duplicated materials
7. ..... Supplementary phonics program
8. ..... Trade books (library books)
9. ..... Other (please specify).....

23. Do you have assistance in ORGANIZING or PLANNING READING activities in the classroom? Check ONLY ONE.

1. ..... Yes
2. ..... No

24. If YES to Question No. 23, from WHICH of the following do you get the MAJOR ASSISTANCE? Check ONLY ONE.

1. ..... Principal
2. ..... Supervisor
3. ..... Reading Consultant
4. ..... Inspector

READING COMMISSION STUDY QUESTIONNAIRE—Continued

25. How OFTEN is this help AVAILABLE? Check ONLY ONE.

1. ..... Very seldom
2. ..... As the need is felt
3. ..... Extensive consultation

26. Do the pupils in the present class have INDIVIDUAL HELP in reading outside regular class periods? Check ONLY ONE.

1. ..... No extra help
2. ..... Very little extra help
3. ..... Help given regularly during recess, before or after school, or during free periods by the classroom teacher
4. ..... Help given regularly by an adjustment teacher or other qualified person in the school system
5. ..... Help given by a reading specialist occasionally
6. ..... Help given by a reading specialist on a regularly scheduled basis
7. ..... Other (please specify) .....

27. If extra help is given, HOW do you determine when help is needed? Check ONLY ONE.

1. ..... Teacher-made test
2. ..... Standardized reading test
3. ..... Teacher observation
4. ..... Teacher observation and testing (please specify test) .....
5. ..... Other (please specify) .....

28. Does your school have a CENTRAL SCHOOL LIBRARY? Check ONLY ONE.

1. ..... Yes
2. ..... No

29. If YES in No. 28, WHEN was it established? Check ONLY ONE.

1. ..... Before 1955
2. 1955-60
3. 1960-62
4. 1962-65
5. 1965-68

30. Do you have access to a PUBLIC LIBRARY? Check ONLY ONE.

1. ..... Yes
2. ..... No

31. If YES in No. 28, approximately how many BOOKS are in the SCHOOL LIBRARY? Check ONLY ONE.

1. ..... 100 or less
2. ..... 201 to 500 books
5. ..... 501 to 1000 books
4. ..... 1001 to 2000 books
5. ..... 2001 to 4000 books
6. ..... 4001 to 5000 books
7. ..... 5001 to 6000 books
8. ..... 6001 books or more

32. How many BOOKS PER PUPIL are available in the school library? Check ONLY ONE.

1. ..... 1 - 5
2. ..... 6 - 10
3. ..... 11 - 15
4. ..... 16 - 20
5. ..... more than 20

READING COMMISSION STUDY QUESTIONNAIRE—Continued

33. Is there a CLASSROOM LIBRARY? Check ONLY ONE.

1. ..... Yes
2. ..... No
3. ..... Combination of Central Library and Classroom Library

34. If YES to Question 33, approximately how many BOOKS belong to the CLASSROOM LIBRARY? Check ONLY ONE.

1. ..... 50 or less
2. ..... 51 - 100
3. ..... 101 - 120
4. ..... 121 - 160
5. ..... 161 - 200
6. ..... 201 books or more

35. If YES to Question 33, how are CLASSROOM LIBRARIES USED by your present class? Check ONLY ONE.

1. ..... Reference
2. ..... Library Skills
3. ..... Recreational Reading
4. ..... Research
5. ..... Combination (please specify).....

36. If your school has a Central Library, HOW is it STAFFED? Check ONLY ONE.

1. ..... Full-time Librarian
2. ..... Part-time Librarian
3. ..... Classroom Teachers
4. ..... Students
5. ..... Other (please specify).....

37. What is the SIZE of your present class? Check ONLY ONE.

1. ..... Less than 20
2. ..... Between 20 - 25
3. ..... Between 26 - 30
4. ..... Between 31 - 35
5. ..... Between 36 - 40
6. ..... Between 41 - 45
7. ..... Between 46 - 50
8. ..... More than 50

38. What is the average EDUCATIONAL-CULTURAL family background of your school COMMUNITY? Check ONLY ONE.

1. ..... Attended University
2. ..... Attended High School
3. ..... Attended Elementary

39. Which of the following statements best describe the language background of your class? Check ONLY ONE.

1. ..... At home the children speak another language than English
2. ..... At home the children hear but do not speak another language
3. ..... At home the children neither hear nor speak another language

40. What percentage of your classroom children speak a second LANGUAGE at home? Check ONLY ONE.

1. ..... No other language at home
2. ..... Less than 10%
3. ..... 10% - 20%
4. ..... 20% - 30%
5. ..... 30% - 40%
6. ..... 40% - 50%
7. ..... 50% - 60%
8. ..... 60% and over

READING COMMISSION STUDY QUESTIONNAIRE—Continued

SECTION B

1. From your experience, what would you say is the main cause of failure to read?

   .....

   .....

   .....

2. Is the children's interest in reading aroused by any special approach?

   .....

   .....

   .....

3. In your opinion, how adequate was your preparation in teachers' training for teaching reading?

   Comment:.....

   .....

   .....

4. What professional journals does your school receive in the field of reading?

   .....

   .....

   .....

PLEASE RETURN THIS QUESTIONNAIRE IN A **SEALED SELF-ADDRESSED** ENVELOPE TO YOUR PRINCIPAL.

AN EVALUATION OF INSTRUCTION ON READING IN THE PROVINCE OF MANITOBA

COMMISSION ON READING
for
THE MANITOBA TEACHERS' SOCIETY

191 Harcourt Street at Portage — Winnipeg 12, Manitoba

January 15, 1969

TO: Elementary School Teachers of Grades I, II, III and VI.

This questionnaire is the major instrument in a study in the field of reading being conducted by the Commission on Reading for The Manitoba Teachers' Society.

The primary purpose of the study is to appraise the existing conditions under which reading instruction takes place in the province of Manitoba. An important related purpose is to provide the teachers themselves, educational authorities, and the public generally with dependable information of the problems and needs that a teacher faces in teaching reading in Manitoba.

It is the hope of the Commission that the results of this study will provide guidelines for the institutions and the persons who are involved in the improvement of education.

The questionnaire is being sent to all grade teachers who teach reading in grades 1, 2, 3 and 6 of the province. The basic list from which your name was taken was supplied by The Manitoba Teachers' Society and the Department of Education.

No identification of individuals or schools will be made in the report. Your response is important. Accurate results will be achieved only if we have replies from every teacher in the province.

We are grateful for your help and urge you to complete the questionnaire and return it in the enclosed, self-addressed envelope not later than February 28, 1969.

Yours very truly,

P. G. HALAMANDARIS,
Research Director.

APPENDIX II

TABLE 1

MATRIX OF INTERCORRELATION FOR SELECTED INDEPENDENT AND DEPENDENT VARIABLES — GRADE ONE

No.	Variable	Abbreviation	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	15	SEL																
2	17	LOE	.04															
3	20	TTUM	−.09	.06														
4	24	LATT	.04	−.00	.25													
5	37	I/SS	.04	.00	−.06	−.16												
6	39	RRTO	.07	.16	−.02	.00	−.02											
7	41	RRTOR	−.07	−.18	−.02	−.05	−.04	−.86										
8	47	CRBPL	.20	.33	−.00	.14	−.02	.09	−.09									
9	76	G:T	.00	.14	−.00	−.00	.03	.31	−.32	.12								
10	114	AR:OPR	−.11	.09	.03	−.00	.03	.12	−.10	.04	−.10							
11	131	TODHN	−.01	.08	−.00	.03	.02	.22	−.24	−.00	.03	−.06						
12	132	TOTDHN	.02	−.06	−.01	−.02	.00	−.22	.26	−.03	−.02	.05	−.91					
13	153	S/C	.02	−.04	−.06	−.01	.03	−.13	.08	−.02	−.06	−.15	−.02	.01				
14	154	AF:AU	−.31	−.11	.08	−.04	−.06	−.09	.12	−.07	−.02	−.04	.03	−.02	.11			
15	155	AF:AH	−.21	−.52	−.00	−.03	−.00	−.15	.16	−.25	−.07	.05	−.11	.07	−.04	−.16		
16	156	AF:AE	.30	.56	−.02	.04	.02	.18	−.20	.27	.08	−.04	.10	−.06	.01	−.13	−.95	

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TABLE 2

MATRIX OF INTERCORRELATION FOR SELECTED INDEPENDENT AND DEPENDENT VARIABLES — GRADE TWO

No.	Variable	Abbreviation	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	15	SEL																		
2	17	LOE	.05																	
3	38	CTRP	.13	−.21																
4	44	CATO	.06	.28	.02															
5	45	CATOR	.07	−.24	−.01	−.90														
6	47	CRBPL	.16	.22	.06	.13	−.10													
7	48	CKE	−.19	−.33	.01	−.27	.24	−.11												
8	74	TPR:O	−.04	.13	−.09	−.07	.05	−.03	.11											
9	99	PR:GB	.00	.06	−.06	.02	−.01	−.04	−.03	−.07										
10	111	SRM:SPP	.08	.13	−.06	.08	−.05	.12	−.00	.09	.02									
11	136	APL	−.05	.34	−.05	.25	−.21	.04	−.39	.07	−.00	−.03								
12	153	S/C	−.11	−.12	−.09	−.15	.15	−.08	.18	−.07	−.00	−.05	−.19							
13	154	AF:AU	−.33	−.10	−.02	−.06	.07	−.08	.10	−.03	.16	.05	−.10	.18						
14	155	AF:AH	−.19	−.44	.07	−.22	.18	−.22	.27	−.07	.04	−.25	−.24	.04	−.14					
15	156	AF:AE	.28	.47	−.06	.23	−.20	.24	−.30	.08	−.08	.24	.27	−.09	−.11	−.96				
16	157	CSLOTE	.07	.66	−.14	.14	−.15	.22	−.22	.14	−.06	.10	.18	−.00	−.03	−.43	−.44			
17	159	CNHSOL	−.19	−.57	.11	−.09	.08	−.14	.25	−.10	.01	−.10	−.19	.00	.05	.46	−.47	−.58		
18	160	PCSOL	.07	.81	−.14	.19	−.16	.22	−.25	.16	−.07	.13	.29	−.02	−.03	−.48	.49	.78	−.55	

TABLE 3

MATRIX OF INTERCORRELATION FOR SELECTED INDEPENDENT AND DEPENDENT VARIABLES — GRADE THREE

No.	Variable	Abbreviation	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	15	SEL														
2	17	LOE	.01													
3	24	LATT	.16	.11												
4	30	HJEE	−.01	−.09	.00											
5	37	I/SS	.02	−.14	−.12	−.02										
6	39	RRTO	−.09	.41	.03	.25	.22									
7	44	CATO	.05	.23	.06	−.00	−.08	.56								
8	45	CATOR	−.02	−.20	−.00	−.01	.07	−.57	−.86							
9	46	CAO	−.05	−.07	−.09	.04	−.00	−.06	−.25	−.22						
10	47	CRBPL	.04	.13	.22	.03	.07	.00	.03	.00	−.09					
11	48	CKE	−.12	−.37	−.07	.12	06	−.34	−.32	.30	.04	−.00				
12	76	G:TO	.04	.06	.11	−.09	−.10	.30	.30	−.29	−.00	.00	−.14			
13	77	G:C	−.04	−.09	−.11	.10	.11	−.29	−.31	.30	.00	.00	.16	−.98		
14	87	TMT:A	.19	.07	.05	−.01	.05	−.14	−.07	.08	−.03	.06	−.15	.03	−.01	
15	111	SRM:SPP	−.11	.08	.05	.01	−.01	.00	.02	.00	−.03	.07	−.10	.00	−.05	−.01
16	116	AR:S	.27	−.17	.26	.11	−.04	.56	.23	−.20	−.14	.08	.08	.13	−.07	−.12
17	132	TOTDHN	−.01	.00	−.04	.19	−.04	−.33	−.21	.17	−.07	−.04	.17	−.04	.12	.01
18	134	SL	.04	.17	.11	−.01	−.09	.23	.20	−.18	−.06	.07	−.28	−.09	−.06	.08
19	136	APL	−.00	.36	.04	−.17	−.13	.36	.22	−.19	−.04	−.05	−.40	.03	−.10	.02
20	138	B/PSL	.07	.26	−.12	.11	.12	.35	.08	−.09	.01	.05	−.19	−.04	.01	.13
21	142	NBCL	−.11	.14	.00	.19	−.02	.17	.17	−.20	.05	−.04	−.08	−.01	−.01	−.07
22	145	CL:RR	.00	.15	.07	−.09	.04	.03	.04	.02	−.14	.15	−.09	−.01	−.15	.07
23	147	CL:CP	−.02	−.13	−.05	.09	.04	.03	−.01	−.02	.09	−.16	.08	−.01	.16	−.03
24	153	S/C	−.08	−.13	−.05	.09	.02	−.20	−.10	.14	−.09	−.07	.15	−.13	.03	−.11
25	155	AF:AH	−.26	−.45	−.13	.03	.03	−.24	−.14	.13	.05	−.16	.21	−.00	.08	.05
26	156	AF:AE	.32	.47	.14	−.02	−.03	.24	.14	−.13	−.04	.16	−.23	−.02	−.06	−.07
27	157	CSLOTE	.06	.60	.05	−.06	.02	−.00	.09	−.09	−.01	.10	−.15	.07	.01	−.01
28	159	CNHSOL	−.18	−.51	−.03	.02	.02	−.06	−.03	.04	−.02	−.01	.16	−.03	.09	.03

No.	Variable	Abbreviation	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	15	SEL														
2	17	LOE														
3	24	LATT														
4	30	HJEE														
5	37	I/SS														
6	39	RRTO														
7	44	CATO														
8	45	CATOR														
9	46	CAO														
10	47	CRBPL														
11	48	CKE														
12	76	G:TO														
13	77	G:C														
14	87	TMT:A														
15	111	SRM:SPP														
16	116	AR:S	.10													
17	132	TOTDHN	.08	−.00												
18	134	SL	.00	−.19	−.16											
19	136	APL	.11	−.26	−.16	.25										
20	138	B/PSL	.00	−.20	−.10	.01	.14									
21	142	NBCL	.03	−.02	−.07	.09	.11	.32								
22	145	CL:RR	.14	.26	−.03	.06	.07	−.00	−.18							
23	147	CL:CP	−.14	−.26	.07	−.01	−.04	.07	.20	−.92						
24	153	S/C	−.01	−.11	.17	−.16	−.16	−.17	−.08	.03	−.03					
25	155	AF:AH	−.07	−.09	.05	−.17	−.24	−.12	−.16	−.16	.17	.14				
26	156	AF:AE	.08	.09	.03	.18	.25	.13	−.03	.15	−.17	−.13	−.97			
27	157	CSLOTE	−.00	.05	.02	.03	.19	.00	.10	.10	−.10	.00	−.36	.36		
28	159	CNHSOL	−.02	.02	−.01	.00	−.13	−.14	.03	−.06	.08	−.01	.31	−.33	−.51	

TABLE 4

MATRIX OF INTERCORRELATION FOR SELECTED INDEPENDENT AND DEPENDENT VARIABLES — GRADE SIX

No.	Variable	Abbreviation	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	15	SEL																			
2	17	LOE	.01																		
3	38	CTRP	.11	-.02																	
4	44	CATO	.04	.20	.02																
5	45	CATOR	-.02	-.21	.04	-.77															
6	47	CRBPL	.24	.17	.02	-.02	.07														
7	48	CKE	-.18	-.36	-.05	-.33	.33	-.05													
8	66	CO:J	.01	-.07	-.08	-.05	.09	-.02	.20												
9	76	G:TO	-.04	.34	.07	.31	-.27	-.03	-.17	-.08											
10	105	SRM:I	-.13	-.24	-.17	-.11	.13	.07	.18	.06	-.18										
11	126	PH:RSO	.04	-.10	-.04	.31	-.01	-.15	.12	-.07	.19	.20									
12	134	SL	.07	.12	-.00	-.07	.09	.01	.04	.07	-.12	-.05	-.05								
13	136	APL	.04	.35	.05	.35	-.36	.04	-.03	-.02	-.09	.06	-.08	.20							
14	153	S/C	-.05	-.20	-.07	-.17	.16	.00	.11	-.04	.05	.08	.08	-.14	-.17						
15	154	AF:AU	-.35	-.10	.10	-.11	.15	-.11	.23	.02	.09	-.02	-.02	-.00	-.13	.06					
16	155	AF:AH	-.13	-.50	-.19	-.18	.16	-.13	.23	.13	.04	.02	.09	-.20	-.26	.08	-.17				
17	156	AF:AE	.24	.52	.16	.21	-.21	.17	-.31	-.14	-.07	-.02	-.08	.20	.31	-.10	-.15	-.94			
18	157	CSLOTE	.10	.65	.13	.11	-.10	.18	-.22	-.08	-.09	-.06	-.09	.17	.21	-.14	-.05	-.40	.42		
19	159	CNHSOL	-.20	-.54	-.16	.00	.06	-.06	.21	.09	.12	.11	.03	-.05	-.14	.09	.14	.36	-.41	-.55	
20	160	PCSOL	.11	.80	.20	.08	-.10	.21	-.25	-.06	-.05	-.01	-.05	.13	.29	-.15	-.06	-.46	.49	.75	-.58

APPENDIX III

TABLE 1

Analysis of Variance of the Reading Achievement Scores of Pupils Classified According to Urban/Rural, Grade Level, Sex, Socio-Economic Level, and Language (four levels) Factors

Source of Variation	DF	MS	F
Urban/Rural	1	26340.1055	230.30**
Grade	3	2910113.0000	25444.04**
U/R × Grd	3	6905.8867	60.38**
Sex	1	14631.6680	127.93**
U/R × Sex	1	270.2808	2.36NS
Grd × Sex	3	259.8232	2.27NS
U/R × Grd × Sex	3	279.6108	2.44*
Socioeconomic Level	2	40474.9375	353.89**
U/R × SEL	2	653.4868	5.71**
Grd × SEL	6	4627.1758	40.46**
U/R × Grd × SEL	6	404.6702	3.54**
Sex × SEL	2	401.0466	3.51*
U/R × Sex × SEL	2	6.1587	0.05NS
Grd × Sex × SEL	6	90.1134	.079NS
U/R × Grd × Sex × SEL	6	29.4237	0.26NS
Language	3	5183.4023	45.32**
U/R × Lan	3	2352.7656	20.57**
Grd × Lan	9	447.6235	3.91**
U/R × Grd × Lan	9	565.5781	4.95**
Sex × Lan	3	339.7305	2.97*
U/R × Sex × Lan	3	216.0314	1.89NS
Grd × Sex × Lan	9	464.2161	4.06**
U/R × Grd × Sex × Lan	9	174.6141	1.53NS
SEL × Lan	6	160.0101	1.40NS
U/R × SEL × Lan	6	193.5795	1.69NS
Grd × SEL × Lan	18	75.8097	0.66NS
U/R × Grd × SEL × Lan	18	131.8656	1.15NS
Sex × SEL × Lan	6	208.4102	1.82NS
U/R × Sex × SEL × Lan	6	14.4987	0.13NS
Grd × Sex × SEL × Lan	18	110.1713	0.96NS
U/R × Grd × Sex × SEL × Lan	18	146.2254	1.28NS
Within Cells	23627	114.3730	
Total	23818		

**$p < .01$
* $p < .05$

TABLE 2

Analysis of Variance of the Reading Achievement Scores of Pupils Classified According to Sex, Grade Level, Urban/Rural, Socio-Economic Level, and Question 39 (Questionnaire).

Source of Variation	DF	MS	F
Urban/Rural	1	5545.9492	52.77**
Grade	3	1446514.0000	13762.99**
U/R × Grade	3	2938.5168	27.96**
Sex	1	10327.0078	98.26**
U/R × Sex	1	1.7700	0.02NS
Grd × Sex	3	139.8831	1.33NS
U/R × Grd × Sex	3	701.6873	6.68**
Socioeconomic Level	2	13031.5664	123.99**
U/R × SEL	2	12.9775	0.12NS
Grd × SEL	6	1679.4629	15.98**
U/R × Grd × SEL	6	251.7527	2.40*
Sex × SEL	2	51.1296	0.49NS
U/R × Sex × SEL	2	145.8727	1.39NS
Grd × Sex × SEL	6	214.6903	2.04NS
U/R × Grd × Sex × SEL	6	199.3556	1.90NS
Q39	1	17163.1367	163.30**
U/R × Q39	1	62.3058	0.59NS
Grd × Q39	3	1399.3125	13.31**
U/R × Grd × Q39	3	727.3066	6.92**
Sex × Q39	1	619.9832	5.90*
U/R × Sex × Q39	1	89.4590	0.85NS
Grd × Sex × Q39	3	158.1104	1.50NS
U/R × Grd × Sex × Q39	3	502.0098	4.78**
SEX × Q39	2	385.1174	3.66*
U/R × SEL × Q39	2	23.5818	0.22NS
Grd × SEL × Q39	6	62.0878	0.59NS
U/R × Grd × SEL × Q39	6	430.4988	4.10**
Sex × SEL × Q39	2	125.5216	1.19NS
U/R × Sex × SEL × Q39	2	584.6362	5.56*
Grd × Sex × SEL × Q39	6	181.6240	1.73NS
U/R × Grd × Sex × SEL × Q39	6	309.8589	2.95**
Within Cells	11749	105.1017	
Total	11844		

**$p < .01$
* $p < .05$

TABLE 3

Analysis of Variance of the Reading Achievement Scores of Pupils Classified According to Sex, Grade Level, Urban/Rural, Socio-Economic Level and Question 40 (Questionnaire).

Source of Variation	DF	MS	F
Urban/Rural	1	18704.1172	156.53**
Grade	3	3082285.0000	25794.71**
U/R × Grd	3	3954.7551	33.10**
Sex	1	26644.5234	222.98**
U/R × Sex	1	0.6844	0.01NS
Grd × Sex	3	407.9785	3.41*
U/R × Grd × Sex	3	245.4046	2.05NS
Socioeconomic Level	2	42869.6875	358.76**
U/R × SEL	2	235.8553	1.97NS
Grd × SEL	6	4292.7500	35.92**
U/R × Grd × SEL	6	487.0139	4.08**
Sex × SEL	2	140.7029	1.18NS
U/R × Sex × SEL	2	138.4136	1.16NS
Grd × Sex × SEL	6	276.6780	2.32*
U/R × Grd × Sex × SEL	6	369.9548	3.10**
Q40	3	7953.0313	66.56**
U/R × Q40	3	1595.6914	13.35**
Grd × Q40	9	1099.1899	9.20**
U/R × Grd × Q40	9	1488.2959	12.46**
Sex × Q40	3	85.1486	0.71NS
U/R × Sex × Q40	3	370.0503	3.10*
Grd × Sex × Q40	9	96.4154	0.81NS
U/R × Grd × Sex × Q40	9	190.0 29	1.59NS
SEL × Q40	6	148.3397	1.24NS
U/R × SEL × Q40	6	447.1990	3.74**
Grd × SEL × Q40	18	472.2659	3.95**
U/R × Grd × SEL × Q40	18	416.6755	3.49**
Sex × SEL × Q40	6	29.8737	0.25NS
U/R × Sex × SEL × Q40	6	131.5576	1.10NS
Grd × Sex × SEL × Q40	18	128.8071	1.08NS
U/R × Grd × Sex × SEL × Q40	18	95.2907	0.80NS
Within Cells	23373	119.4929	
Total	23564		

**$p < .01$
* $p < .05$

TABLE 4

Analysis of Variance of the Reading Achievement Scores of Pupils Classified According to Sex, Grade Level, Urban/Rural, Socio-Economic Level and Question 38 (Questionnaire).

Source of Variation	DF	MS	F
Urban/Rural	1	829.4539	7.34**
Grade	3	2897665.0000	25651.31**
U/R × Grd	3	557.8037	4.94**
Sex	1	19497.1367	172.60**
U/R × Sex	1	615.8687	5.45*
Grd × Sex	3	526.7925	4.66**
U/R × Grd × Sex	3	200.2751	1.77NS
Socioeconomic Level	2	29619.4570	262.20**
U/R × SEL	2	490.2148	4.34*
Grd × SEL	6	3041.0220	26.92**
U/R × Grd × SEL	6	223.6525	1.98NS
Sex × SEL	2	51.5602	0.46NS
U/R × Sex × SEL	2	106.4260	0.94NS
Grd × Sex × SEL	6	184.0285	1.63NS
U/R × Grd × Sex × SEL	6	258.7217	2.29*
Q38	1	47712.5195	422.37**
U/R × Q38	1	2620.0737	23.19**
Grd × Q38	3	4572.9883	40.48**
U/R × Grd × Q38	3	80.4220	0.71NS
Sex × Q38	1	839.1731	7.43**
U/R × Sex × Q38	1	33.5526	0.30NS
Grd × Sex × Q38	3	591.4019	5.24**
U/R × Grd × Sex × Q38	3	144.0754	1.28NS
SEL × Q38	2	431.3850	3.82*
U/R × SEL × Q38	2	431.3450	3.82*
Grd × SEL × Q38	6	50.9164	0.45NS
U/R × Grd × SEL × Q38	6	111.2209	0.98NS
Sex × SEL × Q38	2	28.6794	0.25NS
U/R × Sex × SEL × Q38	2	42.0242	0.37NS
Grd × Sex × SEL × Q38	6	42.4769	0.38NS
U/R × Grd × Sex × SEL × Q38	6	41.1973	0.36NS
Within Cells	23204	112.9636	
Total	23299		

**$p < .01$
* $p < .05$

TABLE 5

Analysis of Variance of the Reading Achievement Scores of Pupils Classified According to Urban/Rural, IQ, Sex, Socio-Economic Level and 2-Level Language Variable.

Source of Variation	DF	MS	F
Urban/Rural	1	98.3382	0.25NS
IQ	5	349288.1875	887.43**
U/R × IQ	5	244.5619	0.62NS
Sex	1	5012.4922	12.74**
U/R × Sex	1	817.2134	2.08NS
IQ × Sex	5	823.6687	2.09*
U/R × IQ × Sex	5	281.0708	0.71NS
SEL	2	2066.3281	5.25**
U/R × SEL	2	3535.4082	8.98**
IQ × SEL	10	797.5229	2.03*
U/R × IQ × SEL	10	553.5549	1.41NS
Sex × SEL	2	112.1217	0.28NS
U/R × Sex × SEL	2	356.7158	0.91NS
IQ × Sex × SEL	10	461.2678	1.17NS
U/R × IQ × Sex × SEL	10	248.2231	0.63NS
Lan	1	7200.3398	18.29**
U/R × Lan	1	1223.0569	3.11NS
IQ × Lan	5	2569.4546	6.53**
U/R × IQ × Lan	5	991.8328	2.52*
Sex × Lan	1	138.3569	0.35NS
U/R × Sex × Lan	1	658.5088	1.67NS
IQ × Sex × Lan	5	711.5457	1.81NS
U/R × IQ × Sex × Lan	5	299.2903	0.76NS
SEL × Lan	2	256.7637	0.65NS
U/R × SEL × Lan	2	69.2937	0.18NS
IQ × SEL × Lan	10	128.3868	0.33NS
U/R × IQ × SEL × Lan	10	356.0227	0.90NS
Sex × SEL × Lan	2	524.2346	1.33NS
U/R × Sex × SEL × Lan	2	375.6851	0.95NS
I.Q. × Sex × SEL × Lan	10	113.3123	0.29NS
U/R × IQ × Sex × SEL × Lan	10	233.5087	0.59NS
Within Cells	24012	393.5950	
Total	24155		

**$p < .01$
* $p < .05$

TABLE 6

Analysis of Variance of the Reading Achievement Scores of Pupils Classified According to Sex, Grade Level, Urban/Rural, Socio-Economic Level, and Question 37 (Questionnaire).

Source of Variation	DF	MS	F
Urban/Rural	1	4026.4492	34.11**
Grade	3	2885664.0000	24445.62**
U/R × Grd	3	4045.6274	34.27**
Sex	1	14218.8516	120.45**
U/R× Sex	1	1223.4355	10.36**
Grd × Sex	3	539.6851	4.57**
U/R × Grd × Sex	3	331.9919	2.81NS
Socioeconomic Level	2	33328.5938	282.34**
U/R × SEL	2	107.4136	0.91NS
Grd × SEL	6	3454.0957	29.26**
U/R × Grd × SEL	6	749.9895	6.35**
Sex × SEL	2	16.5270	0.14NS
U/R × Sex × SEL	2	359.6318	3.05**
Grd × Sex × SEL	6	279.0496	2.36*
U/R × Grd × Sex × SEL	6	879.5449	7.45**
Q37	3	6659.4570	56.41**
U/R × Q37	3	2426.6118	20.56**
Grd × Q37	9	2505.2898	21.22**
U/R × Grd × Q37	9	1722.2524	14.59**
Sex × Q37	3	374.7825	3.17*
U/R × Sex × Q37	3	389.9131	3.30*
Grd × Sex × Q37	9	815.7876	6.91*
U/R × Grd × Sex × Q37	9	109.3840	0.93NS
SEL × Q37	6	338.9456	2.87**
U/R × SEL × Q37	6	218.8459	1.85NS
Grd × SEL × Q37	18	295.5427	2.50**
U/R × Grd × SEL × Q37	18	214.3768	1.82*
Sex × SEL × Q37	6	129.8598	1.10NS
U/R × Sex × SEL × Q37	6	204.4411	1.73NS
Grd × Sex × SEL × Q37	18	93.3513	0.79NS
U/R × Grd × Sex × SEL × Q37	18	72.6528	0.62NS
Within Cells	22769	118.0442	
Total	22960		

**$p < .01$
* $p < .05$

TABLE 7

Analysis of Variance of Reading Achievement Scores of Pupils Classified According to Sex, Socio-Economic Level and Question 15.

Source of Variation	DF	MS	F
Sex	1	15216.2852	32.73**
SEL	2	46133.2813	99.24**
Sex × SEL	2	1228.8206	2.64NS
Q15	4	89163.5000	191.78**
Sex × Q15	4	292.7107	0.63NS
SEL × Q15	8	1270.5327	2.73**
Sex × SEL × Q15	8	545.4697	1.17NS
Within Cells	16572	464.9307	
Total	16601		

**$p < .01$

* $p < .05$

TABLE 8

Analysis of Variance of the Reading Achievement Scores of Pupils Classified According to Sex, Grade Level, Urban/Rural, Socio-Economic Level and Question 11 (Questionnaire).

Source of Variation	DF	MS	F
Urban/Rural	1	5176.4219	43.35**
Grade	3	3155552.0000	26423.92**
U/R × Grd	3	840.9844	7.04**
Sex	1	20325.3516	170.20**
U/R × Sex	1	20.2130	0.17NS
Grd × Sex	3	405.4412	3.40*
U/R × Grd × Sex	3	258.5449	2.16NS
Socioeconomic Level	2	42109.0000	352.61**
U/R × SEL	2	305.3535	2.56NS
Grd × SEL	6	4125.3477	34.54**
U/R × Grd × SEL	6	276.0183	2.31*
Sex × SEL	2	36.6030	0.31NS
U/R × Sex × SEL	2	18.1618	0.15NS
Grd × Sex × SEL	6	141.9779	1.19NS
U/R × Grd × Sex × SEL	6	164.1347	1.37NS
Q11	2	8178.9258	68.49**
U/R × Q11	2	3653.0996	30.59**
Grd × Q11	6	1553.5762	13.01**
U/R × Grd × Q11	6	2234.5962	18.71**
Sex × Q11	2	364.5962	3.05*
U/R × Sex × Q11	2	209.8318	1.76NS
Grd × Sex × Q11	6	556.5854	4.66**
U/R × Grd × Sex × Q11	6	419.7100	3.51**
SEL × Q11	4	457.2683	3.83**
U/R × SEL × Q11	4	198.2051	1.66NS
Grd × SEL × Q11	12	153.7489	1.29NS
U/R × Grd × SEL × Q11	12	271.3511	2.27**
Sex × SEL × Q11	4	377.5867	3.16*
U/R × Sex × SEL × Q11	4	65.7339	0.55NS
Grd × Sex × SEL × Q11	12	312.9983	2.62**
U/R × Grd × Sex × SEL × Q11	12	149.7158	1.25NS
Within Cells	23076	119.4203	
Total	23219		

**$p < .01$
* $p < .05$

TABLE 9

Analysis of Variance of the Reading Achievement Scores of Pupils Classified According to Sex, Grade Level, Urban/Rural, Socio-Economic Level and Question 7 (Questionnaire).

Source of Variation	DF	MS	F
Urban/Rural	1	15127.4258	125.55**
Grade	3	2937524.0000	24380.34**
U/R × Grd	3	2411.2134	20.01**
Sex	1	20883.7500	173.33**
U/R × Sex	1	3.4014	0.03NS
Grd × Sex	3	540.9709	4.49**
U/R × Grd × Sex	3	266.1713	2.21NS
Socioeconomic Level	2	48920.1875	406.02**
U/R × SEL	2	328.8389	2.73**
Grd × SEL	6	6396.8281	53.09**
U/R × Grd × SEL	6	319.7217	2.65*
Sex × SEL	2	508.9995	4.22**
U/R × Sex × SEL	2	395.8635	3.29*
Grd × Sex × SEL	6	321.5391	2.67*
U/R × Grd × Sex × SEL	6	1024.9856	8.51**
Q7	3	3662.0391	30.39**
U/R × Q7	3	647.4270	5.37**
Grd × Q7	9	1625.0120	13.49**
U/R × Grd × Q7	9	610.7383	5.07**
Sex × Q7	3	285.6511	2.37NS
U/R × Sex × Q7	3	568.6230	4.72**
Grd × Sex × Q7	9	88.4931	0.73NS
U/R × Grd × Sex × Q7	9	156.7649	1.30NS
SEL × Q7	6	1486.0352	12.33**
U/R × SEL × Q7	6	189.0838	1.57NS
Grd × SEL × Q7	18	464.6077	3.86**
U/R × Grd × SEL × Q7	18	148.4938	1.23NS
Sex × SEL × Q7	6	525.1934	4.36**
U/R × Sex × SEL × Q7	6	272.2229	2.26NS
Grd × Sex × SEL × Q7	18	309.1445	2.57NS
U/R × Grd × Sex × SEL × Q7	18	51.7313	0.43NS
Within Cells	23732	120.4874	
Total	23923		

**$p < .01$
* $p < .05$

TABLE 10

Analysis of Variance of the Reading Achievement Scores of Pupils Classified According to Sex, Grade, Urban/Rural, Socio-Economic Level, and Question 20.

Source of Variation	DF	MS	F
Urban/Rural	1	12332.5586	102.11**
Grade	3	3022203.0000	25022.49**
U/R × Grd	3	929.4409	7.70**
Sex	1	20430.9219	169.16**
U/R × Sex	1	303.4270	2.51NS
Grd × Sex	3	526.3196	4.36**
U/R × Grd × Sex	3	119.2736	0.99NS
SEL	2	34618.5938	286.63**
U/R × SEL	2	270.3779	2.24NS
Grd × SEL	6	3077.5508	25.48**
U/R × Grd × SEL	6	307.7087	2.55*
Sex × SEL	2	141.4850	1.17NS
U/R × Sex × SEL	2	527.5554	4.37*
Grd × Sex × SEL	6	181.9243	1.51NS
U/R × Grd × Sex × SEL	6	478.2104	3.96**
Q20	2	2214.3105	18.33**
U/R × Q20	2	939.6331	7.78**
Grd × Q20	6	1449.4075	12.00**
U/R × Grd × Q20	6	486.2424	4.03**
Sex × Q20	2	557.8870	4.62**
U/R × Sex × Q20	2	7.9921	0.07NS
Grd × Sex × Q20	6	363.3635	3.01**
U/R × Grd × Sex × Q20	6	187.2460	1.55NS
SEL × Q20	4	887.1394	7.35**
U/R × SEL × Q20	4	213.4982	1.77NS
Grd × SEL × Q20	12	436.8613	3.62**
U/R × Grd × SEL × Q20	12	148.2754	1.23NS
Sex × SEL × Q20	4	286.5361	2.37*
U/R × Sex × SEL × Q20	4	153.9292	1.27NS
Grd × Sex × SEL × Q20	12	148.9870	1.23NS
U/R × Grd × Sex × SEL × Q20	12	167.3269	1.39NS
Within Cells	23750	120.7794	
Total	23893		

**$p < .01$
* $p < .05$

TABLE 11

Analysis of Variance of the Reading Achievement Scores of Pupils Classified According to Sex, Grade, Urban/Rural, Socio-Economic Level and Question 21

Source of Variation	DF	MS	F
Urban/Rural	1	11751.4766	95.84**
Grade	3	2755561.0000	22474.30**
U/R × Grd	3	3156.1587	25.74**
Sex	1	20226.3672	164.97**
U/R × Sex	1	50.9542	0.42NS
Grd × Sex	3	1665.9570	13.59**
U/R × Grd × Sex	3	433.2515	3.53*
SEL	2	35324.1250	288.10**
U/R × SEL	2	164.3191	1.34NS
Grd × SEL	6	4770.4883	38.91**
U/R × Grd × SEL	6	344.7588	2.81*
Sex × SEL	2	127.7911	1.04NS
U/R × Sex × SEL	2	96.9373	0.79NS
Grd × Sex × SEL	6	344.9817	2.81*
U/R × Grd × Sex × SEL	6	697.4661	5.69**
Q21	1	2.1621	0.02NS
U/R × Q21	1	211.8416	1.73NS
Grd × Q21	3	437.7559	3.57*
U/R × Grd × Q21	3	315.8362	2.58NS
Sex × Q21	1	11.1285	0.09NS
U/R × Sex × Q21	1	214.1902	1.75NS
Grd × Sex × Q21	3	387.7573	3.16*
U/R × Grd × Sex × Q21	3	71.0370	0.58NS
SEL × Q21	2	388.4661	3.17*
U/R × SEL × Q21	2	37.1033	0.30NS
Grd × SEL × Q21	6	50.0111	0.41NS
U/R × Grd × SEL × Q21	6	29.5341	0.24NS
Sex × SEL × Q21	2	110.6506	0.90NS
U/R × Sex × SEL × Q21	2	283.3306	2.31NS
Grd × Sex × SEL × Q21	6	83.6053	0.68NS
U/R × Grd × Sex × SEL × Q21	6	46.5470	0.38NS
Within Cells	20886	122.6094	
Total	20981		

**$p < .01$
* $p < .05$

TABLE 12

Analysis of Variance of the Reading Achievement Scores of Pupils Classified According to Sex, Grade, Urban/Rural, Socio-Economic Level and Question 22

Source of Variation	DF	MS	F
Urban/Rural	1	16812.1211	138.88**
Grade	3	2813459.0000	23240.44**
U/R × Grd	3	1232.2329	10.18**
Sex	1	21526.4063	177.82**
U/R × Sex	1	93.7394	0.77NS
Grd × Sex	3	347.5359	2.87*
U/R × Grd × Sex	3	29.2257	0.24NS
SEL	2	39489.2813	326.20**
U/R × SEL	2	165.7401	1.37NS
Grd × SEL	6	3512.3130	29.01**
U/R × Grd × SEL	6	722.7192	5.97**
Sex × SEL	2	237.7772	1.96NS
U/R × Sex × SEL	2	241.0836	1.99NS
Grd × Sex × SEL	6	175.3024	1.45NS
U/R × Grd × Sex × SEL	6	535.2383	4.42**
Q22	3	3036.3477	25.08**
U/R × Q22	3	702.4595	5.80**
Grd × Q22	9	928.5972	7.67**
U/R × Grd × Q22	9	504.4543	4.17**
Sex × Q22	3	164.4751	1.36NS
U/R × Sex × Q22	3	1298.2729	10.72**
Grd × Sex × Q22	9	136.7067	1.13NS
U/R × Grd × Sex × Q22	9	439.4270	3.63**
SEL × Q22	6	217.8228	1.80NS
U/R × SEL × Q22	6	398.1736	3.29**
Grd × SEL × Q22	18	251.3303	2.08**
U/R × Grd × SEL × Q22	18	383.0083	3.16**
Sex × SEL × Q22	6	135.8298	1.12NS
U/R × Sex × SEL × Q22	6	196.0353	1.62NS
Grd × Sex × SEL × Q22	18	85.2188	0.70NS
U/R × Grd × Sex × SEL × Q22	18	155.4101	1.28NS
Within Cells	22226	121.0587	
Total	22417		

**p < .01
* p < .05

TABLE 13

Analysis of Variance of the Reading Achievement Scores of Pupils Classified According to Sex, Grade Level, Urban/Rural, Socio-Economic Level, and Question 31 (Questionnaire).

Source of Variation	DF	MS	F
Urban/Rural	1	7303.1563	57.56**
Grade	3	1155700.0000	9108.95**
U/R × Grd	3	328.8259	2.59NS
Sex	1	5344.5664	42.12**
U/R × Sex	1	1618.2734	12.75**
Grd × Sex	3	9.2776	0.07NS
U/R × Grd × Sex	3	538.9927	4.25**
Socioeconomic Level	2	18593.3555	146.55**
U/R × SEL	2	306.2839	2.41NS
Grd × SEL	6	2144.2754	16.90**
U/R × Grd × SEL	6	209.6721	1.65NS
Sex × SEL	2	175.7429	1.39NS
U/R × Sex × SEL	2	465.9609	3.67*
Grd × Sex × SEL	6	292.3345	2.30*
U/R × Grd × Sex × SEL	6	204.3570	1.61NS
Q31	2	168.2828	1.33NS
U/R × Q31	2	47.4657	0.37NS
Grd × Q31	6	524.9749	4.14**
U/R × Grd × Q31	6	363.3367	2.86**
Sex × Q31	2	95.3799	0.75NS
U/R × Sex × Q31	2	276.0457	2.18NS
Grd × Sex × Q31	6	84.5713	0.67NS
U/R × Grd × Sex × Q31	6	141.9733	1.12NS
Soc × Q31	4	120.2969	0.95NS
U/R × SEL × Q31	4	530.8445	4.18**
Grd × SEL × Q31	12	191.0426	1.51NS
U/R × Grd × SEL × Q31	12	75.7995	0.60NS
Sex × SEL × Q31	4	44.0079	0.35NS
U/R × Sex × SEL × Q31	4	346.2905	2.73**
Grd × Sex × SEL × Q31	12	176.4239	1.39NS
U/R × Grd × Sex × SEL × Q31	12	242.1138	1.91NS
Within Cells	8709	126.8752	
Total	8852		

**$p < .01$
* $p < .05$

TABLE 14

Analysis of Variance of the Reading Achievement Scores of Pupils Classified According to Sex, Grade Level, Urban/Rural, Socio-Economic Level and Question 10 (Questionnaire).

Source of Variation	DF	MS	F
Urban/Rural	1	2501.7905	21.22**
Grade	3	2933555.0000	24885.90**
U/R × Grd	3	1312.1831	11.13**
Sex	1	21819.6016	185.10**
U/R × Sex	1	811.5227	6.88**
Grd × Sex	3	1383.3149	11.73**
U/R × Grd × Sex	3	240.7086	2.04NS
Socioeconomic Level	2	30382.0781	257.74**
U/R × SEL	2	27.7006	0.23NS
Grd × SEL	6	4218.1992	35.78**
U/R × Grd × SEL	6	203.7443	1.73NS
Sex × SEL	2	103.7684	0.88NS
U/R × Sex × SEL	2	27.1573	0.23NS
Grd × Sex × SEL	6	427.9500	3.63**
U/R × Grd × Sex × SEL	6	51.6760	.044NS
Q10	3	25448.1250	215.88**
U/R × Q10	3	2265.8633	19.22**
Grd × Q10	9	2432.4656	20.64**
U/R × Grd × Q10	9	967.1094	8.20**
Sex × Q10	3	266.4443	2.26NS
U/R × Sex × Q10	3	53.2401	0.45NS
Grd × Sex × Q10	9	329.4387	2.79**
U/R × Grd × Sex × Q10	9	507.4236	4.30**
SEL × Q10	6	242.6387	2.06NS
U/R × SEL × Q10	6	132.4811	1.12NS
Grd × SEL × Q10	18	95.5102	0.81NS
U/R × Grd × SEL × Q10	18	117.3624	1.00NS
Sex × SEL × Q10	6	83.0571	0.70NS
U/R × Sex × SEL × Q10	6	156.9365	1.33NS
Grd × Sex × SEL × Q10	18	50.8510	0.43NS
U/R × Grd × Sex × SEL × Q10	18	129.8632	1.10NS
Within Cells	22152	117.8802	
Total	22343		

**$p < .01$
* $p < .05$

TABLE 15

Analysis of Variance of the Reading Achievement Scores of Pupils Classified According to Sex, Grade Level, Urban/Rural, Socio-Economic Level and Question 2 (Questionnaire).

Source of Variation	DF	MS	F
Urban/Rural	1	13003.0000	107.41**
Grade	3	2831915.0000	23393.39**
U/R × Grd	3	2175.6262	17.97**
Sex	1	22241.8984	183.73**
U/R × Sex	1	175.6108	1.45NS
Grd × Sex	3	1347.0557	11.13**
U/R × Grd × Sex	3	25.2745	0.21NS
Socioeconomic Level	2	37564.1875	310.30**
U/R × SEL	2	99.1535	0.82NS
Grd × SEL	6	3517.8418	29.06**
U/R × Grd × SEL	6	171.2521	1.41NS
Sex × SEL	2	170.7711	1.41NS
U/R × Sex × SEL	2	327.4651	2.71NS
Grd × Sex × SEL	6	213.7379	1.77NS
U/R × Grd × Sex × SEL	6	373.1064	3.08**
Q2	3	6057.1758	50.04**
U/R × Q2	3	210.9438	1.74NS
Grd × Q2	9	473.8440	3.91**
U/R × Grd × Q2	9	1266.1270	10.46**
Sex × Q2	3	593.8154	4.91**
U/R × Sex × Q2	3	143.9134	1.19NS
Grd × Sex × Q2	9	251.9159	2.08*
U/R × Grd × Sex × Q2	9	310.3735	2.56**
SEL × Q2	6	72.0267	0.59NS
U/R × SEL × Q2	6	151.5846	1.25NS
Grd × SEL × Q2	18	216.1348	1.79*
U/R × Grd × SEL × Q2	18	85.2977	0.70NS
Sex × SEL × Q2	6	153.7859	1.27NS
U/R × Sex × SEL × Q2	6	263.5317	2.18*
Grd × Sex × SEL × Q2	18	83.0490	0.69NS
U/R × Grd × Sex × SEL × Q2	18	86.5784	0.72NS
Within Cells	21328	121.0562	
Total	21519		

**$p < .01$
* $p < .05$

TABLE 16

Analysis of Variance of the Mean Reading Achievement Scores of Pupils Classified According to Urban/Rural, Grade Level, Teachers' Experience and Teachers' Academic Standing

Source of Variation	DF	MS	F
Urban/Rural	1	1879.2688	47.96**
Grade	3	137013.0000	3496.91**
U/R × Grd	3	250.0007	6.38**
Experience	2	496.3921	12.67**
U/R × Exp	2	56.6438	1.45NS
Grd × Exp	6	30.7074	0.78NS
U/R × Grd × Exp	6	12.9291	0.33NS
Academic Standing	1	13.6453	0.35NS
U/R × ACD	1	43.5261	1.11NS
Grd × ACD	3	4.2319	0.11NS
U/R × Grd × ACD	3	17.2909	0.44NS
EXP × ACD	2	38.4384	0.94NS
U/R × EXP × ACD	2	36.4261	0.93NS
Grd × EXP × ACD	6	51.7661	1.32NS
U/R × Grd × EXP × ACD	6	7.0789	0.18NS
Within Cells	1186	39.1812	
Total	1233		

**$p < .01$

* $p < .05$